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CONTENTS

The Teaching of Surgery to Undergraduates. *W. T. Coughlin* 193
Teaching of Graduate Surgery. *George J. Heuer* 205
Present Status of the Teaching of Psychiatry. *Franklin G. Ebaugh* 214
The Accumulation of Clinical Experience. *Rustin McIntosh* 227
Incidence of Tuberculosis in Medical Students. *F. Maurice McPhedran* 236
Editorials 241
College News 243
Personals 250
General News 251
Abstracts of Current Literature 253
Book Reviews 256

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MacCallum's Pathology—*New Edition*
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Continued on Third Cover Page

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JOURNAL
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Volume 8 JULY, 1933 Number 4

The Teaching of Surgery to Undergraduates*

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St. Louis

This is a large and important subject and I realize that I cannot deal with it as it deserves, but I will give my impressions gleaned from observation and experience.

The teaching of the subject may be discussed under the heads of matter, methods and men.

We have not yet agreed on the matter to be taught. Let us come to an agreement on this question. We should decide just how much of surgery it is necessary for us to teach a man before he graduates. To use a much overworked expression, we should define our final objective or goal and then consider means to achieve it. While on this subject, may I be permitted to remark that when we have decided what that goal is, we ought to consider the advisability of making known our decision to the general public for its good.

Do we all agree that the undergraduate is not to be qualified to practice major surgery? I believe we do, but many of our graduates and students do not know this. By our silence we lead licensing bodies to suppose that the graduate's qualification to do so has our approval, and, in such belief, every state board issues its license to practice medicine and surgery. By a direct announcement in the catalog we could do a lot to dispel an erroneous impression. Which school will be the first to make it?

Let it be granted that the end to be attained in undergraduate instruction in surgery is this: (a) The creation in the mind of the student of a realization of the seriousness of a surgeon's responsibility and of the fact that, by our undergraduate course alone, he can never become qualified to do major surgery. (b) To make him familiar enough with the symptoms and pathology of surgical diseases and conditions both by reading and observation that he may be able

1. To obtain a proper ordinary history.
2. To make an ordinary physical examination.

*Read at the Forty-third Annual Meeting of the Association of American Medical Colleges, held in Philadelphia, Nov. 14-16, 1932.

3. To perform all ordinary laboratory tests and examinations and to know their significance when pathologic.
4. To diagnose correctly and treat the ordinary minor surgical ailments, including simple fractures and dislocations.
5. To recognize serious surgical conditions when he encounters them and to know the best measures to be taken for their relief.

To put it briefly, we wish to train him to be a good intern or a good general practitioner. To bring this about in the best way for both school and student is the desire of all, and because I do not know what is the best way, maybe if I outline briefly my ideas as exemplified by the practice in our school, the discussion, if there be any, may lead to such knowledge.

With the further discussion of the matter to be taught, I must also combine the methods, and later mention may be made of methods alone.

History Taking.—On the taking of a good history may hinge the diagnosis, and, as diagnosis is the most important of all, instruction in history writing is given by the department of medicine. As actual repositories of facts from which to make reliable deductions, histories often leave much to be desired. Ours have been much improved by a weekly conference—we hold one for surgical externs—at which histories written in the previous week are read and special comment made on the best one—and sometimes on the worst. The instructor in charge is a surgeon of experience.

Physical Diagnosis.—No one can make a physical examination until he has had a course of instruction in physical diagnosis. His training in this also is a responsibility of the department of medicine. It is our responsibility to add to his equipment an ability to make special examination of the lesion or the region and to write a description of it. This he cannot do well unless he knows the gross anatomy and the pathology. His knowledge of these is constantly being renewed. He should be studying clinical pathology, anatomy and physiology all at the same time—not in one or two years, but in all four years. One is more likely to make a correct diagnosis if he knows what pathologic conditions are more common to the region or organ, but he must know the normal structures or organs in the region. We have reinstated applied anatomy to a place in the third year, and it is a very popular course—one hour a week in the second semester. Much stress is placed on practical anatomy.

Second Year.—With us, the student begins the study of surgery in his second year—minor surgery, splints and bandages. He is obliged to read a certain textbook. Each week the class is taken by the senior instructor and the assignment for the day is reviewed with lantern slides and patient demonstration, the junior instructors being present. The

senior instructor is followed by junior instructors, one for each section. They give individual instruction and quiz on the work covered the week before. In the second semester they begin bandaging in the outpatient department. Two hours a week the first semester and one hour a week in the second semester. In the second half of his second year the student begins to see patients, one hour a week, medical or surgical.

It is in the junior year that he really becomes a student in surgery. This is his year to begin to read surgery. We begin with the well established underlying principles and stress these. We select a textbook, and require a certain assignment to be read each week. On this, the class, divided into sections, is met in conference by the senior men of the department. Each section goes to a different instructor for each conference. Only the senior surgeons are allowed to instruct in this work. Once a week, a clinical demonstration of cases, to illustrate the reading, if possible, is made to the whole class by the professor or the next in rank.

Objection has been made to using any certain textbook. It seems that unless some ordered system is followed, much will be overlooked and overlapped. Furthermore, uniformity of ideas on accepted facts cannot be secured otherwise. That the student is likely to derive fixed ideas from the use of a textbook is not a real objection, and it is highly desirable that he learn certain facts. Two hours a week, throughout the year, are devoted to "principles."

Surgical Pathology.—Surgical pathology means the study of the pathology of surgical conditions or diseases. Both gross and microscopic pathology must be learned and in conjunction therewith the clinical history and course, the vitiated physiology, the symptoms, the special surgical significance, etc. This is a section in the department of surgery. The instructor in charge is a surgeon. Specimens are collected from the various operating rooms and morgues of our own and affiliated hospitals and kept as fresh as possible for the week previous. These are demonstrated to the class. Then lantern slides, prepared from the last day's specimens, are demonstrated on the screen. The junior instructors sit in during the seniors' demonstration. They, then, take the class in sections, and the student sees and examines the gross specimens close up. He then must spot specimens made from those of the last day by the technicians. We found it impractical with the large class to have each student prepare his own sections. It is sometimes hard to impress on the instructor the importance of the gross and clinical pathology, so prevalent is the conception that pathology means a study with the microscope alone—necrology, cytology. Two hours a week in the third year are assigned for this course.

Fractures and Dislocations.—Fractures and dislocations are taught in much the same way. The compound fracture or dislocation is

regarded as a major surgical problem always. The senior instructor, an experienced surgeon who has been specially trained in the treatment of fractures, with the junior instructors sitting in, makes a demonstration with cadaver, lantern slide, roentgen ray, moving picture or patient. The pathology, mechanism of production and treatment of the subject for the day are discussed, and, again a textbook is followed. At the conclusion of his demonstration, or the next ensuing period, the sections are taken by the junior instructors. The surgeon in charge of this course must also have charge of the fracture service for us at the City Hospital and the University Hospital where he will again meet these men next year. About one-fourth of their surgical service in the fourth year is spent with him.

THIRD YEAR.—The clinical work during the third year consists in attendance in the outpatient departments of the various hospitals and at non-operative diagnostic clinics. Cases are brought before the sections (one-fourth of the class) by an instructor, and the examination and methods of diagnosis are worked out with the class—two and a half hours a week. He goes to surgical outpatients for actual practice—one hour three times a week. He does not attend regular lectures on surgery during his third year. From the beginning we emphasize the importance of diagnosis in surgery.

FOURTH YEAR.—In the fourth year, one-third of the forenoons—the days run consecutively—are devoted to surgical service in the hospital. Here the student does the work of an intern under supervision and instruction. His interest is maintained by the ward rounds, the clinico-pathological conference, the history meeting—a special one for externs—and by requiring him to act as third or fourth assistant at operations on the patients he has had assigned to him. His presence is required at autopsies on surgical cases. Instructors are asked to refrain from learned discussion, but rather to ask a question now and then. This stimulates interest.

EXPERIMENTAL SURGERY.—Experimental surgery claims 32 hours in the second semester. Teams of six are organized. Each team has its own table for the course. There is an assistant instructor for each table, but instructors and operators rotate with each period. Regular operating room technic is followed—caps, masks, gowns and gloves are worn. About the same method is followed as in teaching surgical pathology and fractures and dislocations. The senior instructor has charge, and he, with his juniors sitting in, takes the class, with lantern, drawings, etc., over the work for the day and reviews the work of the previous hour, showing the autopsy specimens from animals previously operated on, etc. All operations are done to demonstrate some pathologic or physiologic truth

—never for the mere performance of the operation. The dogs are killed if the work has been poorly done and, if in the opinion of the instructor, recovery is unlikely.

Regional Surgery.—One hour per week he listens to a lecture on special or regional surgery delivered by someone who devotes his attention to that particular branch. There is also one hour a week in the first semester when the class, in sections, is taken by junior faculty members in quiz over a lesson assigned in a textbook in the same sort of work.

Library Work.—Instruction in how to use the library is given by the librarian during the sophomore year. From time to time references to certain original papers are given and the students are required to abstract them. Also, the literature on certain topics for certain years is abstracted by each student. Imagine, if you can, what sort of a library and library help, and how much time would be required in order to permit every student to study every surgical subject in the library. But, this has been advocated!

Examinations.—Oral examinations are given in the third year, but a record of the grading in the conferences is kept, and this, if good, may help the student over a bad place in the written examination given at the end of the semester. They are rendered impersonal by having the student sign by number only. To make it fair for all, the answer to any one question is graded by the same examiner for all. Dr. A. examines all answers to question No. 1, Dr. B, all answers for No. 2, and so on. This gives all an even chance with the examiner who "never gives less than 95" or, perhaps, with him who "never gives anybody more than 80." It makes it easier for the examiner, too. Before coming for his final examinations —about two or three months—the student must have been passed by the board of five—the composite test, an oral examination. The final examination consists of two parts—oral and written. The written examination is given first, and if he fails in this he is not considered ready for the oral. The oral examination is made practical. The student examines a patient and must defend his diagnosis and show that he has a reasonable grasp on principles, pathology and diagnosis. No knowledge of operative technic is required.

Methods of Instruction.—Speaking with regard to methods alone: One must admit at the onset that the direct individual method of instruction between teacher and pupil is the best. But we must be practical and also admit that this is quite impossible in a medical school. In order that all may gain and suffer alike from the instructors, we have established the method of rotation of sections. It makes for greater peace in the family, at least.

The lecture method alone has been found not to produce the best results, but it certainly has great value in conjunction with other methods. As practiced at present in some places, it consists of the dry and painstaking reiteration of facts, statistical or otherwise, with, perhaps, the writing of the same on a blackboard while the unfortunate student, straining ears or eyes, must copy these so-called notes verbatim in a notebook which the instructor will later examine or grade—that is, he will have his assistant do so. This type of instructor belongs to a low form of human life. As a rule, his "notes" are those used for the same lecture (?) last year. His lecture was just as dead last year as it was this year, but, still, he is to be continued in our next, until the dean takes notice. A lecture, with illustrations, is of much greater benefit. A clinical demonstration, properly conducted, has great value. The instructor who demonstrates before a class gets his work ready in advance and is more thorough and enthusiastic. So are the students. I think something was gained when the operative amphitheater clinic was abolished, but the nonoperative diagnostic amphitheater conference is of very decided value. The story telling instructor is often very popular with the class, but, as a teacher, he is of little importance.

The question method—method of Socrates—of all single methods is, perhaps, the most useful. Perhaps it has its dangers. It has been said that it may induce "rote learning." It never can, if used properly. The question never should suggest the answer—should not be answerable by "yes" or "no," should not be an alternative question but it should be framed so as to cause the student to reflect, to reason, rather than to make him remember something he has heard or read—although this is sometimes desirable. The why and the how, as well as the when and where should be emphasized more. The instructor who asks a question and then prompts the student or answer it himself is a sort of nuisance, especially is he a bad examiner; but the instructor who has paid so little attention to his subject that he must carry a textbook, or even very copious notes, to class should not be tolerated at all. What discouragement for the student to see that even his "professor" in all these years has never learned or has forgotten what he is expected to know before graduation!

The young clinical instructor is very apt to become ambitious to impart knowledge of technic and to recount his recent very successful cases. In fact, with some older ones this is a well developed habit. It usually does harm.

The examination which permits a man to go out to practice even minor surgery should not be mere matter of form—and it frequently is. I, like some of you, have passed through the period in which we abolished the examination entirely. The good student—and some of our schools get

only those of the very highest type—needs no teaching at all, and, as a rule, he gets very little of it. His record is better than that of his fellow student who is not so well endowed with ambition or education. But this is not because he does not get any teaching but because he is the best of students. The ordinary student does only what he is required to do, and for him some kind of qualifying test is necessary—an examination.

An examiner should be one who is not personally interested in the student. The student should be taught by one teacher and examined by another. An interchange of examiners between schools would help as much as, or maybe more than, an interchange of students. I fear it will never happen in our country.

The chief reason that examinations have a bad repuation is because of certain examples of unfairness. How often does the examiner expect the student to know as much as he does himself! How often does he come loaded down with facts. I have heard of one who noted questions on his cuffs, and expected a student to know what no one ever remembers. A real examination, of course, would test the candidate's fitness in all the phases of the subject—on the total matter covered by the course. With a large class this is impossible. Just how reliable is the ordinary examination grade as an index of the qualification of the man? How it is with me was shown by a simple experiment. I submitted a paper from a candidate to four different professors. The grades varied from 25 to 100. We use the composite. The examination is a sort of necessary stimulant to the ordinary student.

TEACHERS.—How often have you heard that "So-and-so is a born teacher?" It is just as true that "So-and-so is a born surgeon" or anything else. No one is a born teacher, but we carry on as though we all were born teachers because that, in the main, is the only kind of teacher we have. A man may be born with a fondness for teaching and may become a great teacher without aid—there have been such—and, perhaps, you, offhand, can name half a dozen since time began. What we poor surgeons need is some training in how to teach, and how easy it would be to give us at least a little training since almost every university has its college of education. If this were done, we might more consistently blather about "teaching men how to think."

A man who does not like to teach should be prevented from ever making the attempt. How many very valuable laboratory chiefs simply loathe meeting the class? Time wasted! They may make special friends and cronies of a few chosen spirits and send them far on bright careers, specialists all, but, as a rule, the true research worker makes but a poor imprint on the class. Why not have two chiefs—one for teaching and one for research? After all, a student pays for as much as we give him.

DISCUSSION

DR. E. S. RYERSON (University of Toronto): I congratulate Dr. Coughlin on his various aspects of the teaching of surgery, and commend particularly his suggestion that in undergraduate teaching we should determine a minimum standard of competency for the undergraduate, the ordinary undergraduate, so that he is adequately prepared for the ordinary practice of medicine.

I do not know whether Dr. Coughlin is familiar with a publication by Sir George Newman, chief medical officer of the Ministry of Health and Crown Nominee on the General Medical Council in Great Britain, on "Recent Advances in Medical Education," published in 1923, in which he outlines his suggestions of what should be the minimum competency for an undergraduate. It is almost exactly as outlined by Dr. Coughlin and it shows the idea is spreading that we will have to come to the day when a minimum standard must be adopted.

This fact was demonstrated to me at the recent final examinations in Toronto when I examined the final papers in surgery of our own students. The most outstanding fact was that the student had an extraordinarily broad and extensive knowledge of an enormous amount of material but a very restricted and inadequate knowledge of the main outstanding principles of many important things which he unquestionably should know as a practitioner.

Students have an extraordinary tendency to know a great deal from the subject standpoint of surgery but the application of that knowledge to patients with whom they have been in contact (and you know they have been in contact with them), and their inadequacy in describing cases they have handled themselves, is alarming to a teacher. You feel that your efforts have been entirely wasted.

If, on the other hand, they had only to become fully competent in a more limited field, they would, I think, turn out to be better practitioners and would not have to waste time on an enormous amount of unnecessary matter. In other words, they get a very diffuse smattering of many topics and really know nothing.

One point I would comment on in Dr. Coughlin's paper which does not quite fulfill the principle which he laid down in the first place, was the suggestion that the men should be given a definite course in operating room technic. If practitioners are not going to be required to do major surgery, why spend a lot of time in giving very specific instruction in all of the details of operating room technic? They are taught the general principles of antiseptic and aseptic surgery. They do not need to know nearly so much of operating room technic as is taught them. Minor surgery, unquestionably, is the most valuable part of surgery for them.

At Toronto we have endeavored to make sure that each student gets an adequate amount of minor surgery, by providing him with a form card, a minor surgical record, in which he has to have signed up every piece of minor surgical work which he does, such as manipulation, bandaging, cauterization, operating room scrub-up, use of ligatures, rectal examination, use of the jejunal tube, application of the tourniquet, making incisions and sewing them up, intravenous therapy, "needling of veins" it is called, and so forth.

Each student is provided with one of these cards and during his course he must get one of the instructors in surgery to sign him up for that particular part of the work. It is merely an experiment to make sure that the minor surgical side of his surgical training is fulfilled, because we have found graduates who

complain that they have never put a needle in a vein, or this, that, or the other thing, and this was done with the object of trying to have that particular part of the teaching fulfilled.

Another aspect of the teaching of surgery which we might change is the description Dr. Coughlin gave of the method in the second and third year with reference to the teaching of a subject. A student is assigned a certain amount of set material and is covering set topics, as surgical topics, whereas when he is put in the ward in the final year he has to learn from the standpoint of patients. The sooner we begin to teach men surgery as if it were not a subject in itself but surgical patients, the better the result.

I have been using this method for several years, particularly in the junior year, and the reaction of the student is extraordinary. It is based on the principle that if a man has seen a definite, specific thing himself, he is much more likely to remember it.

I usually tell the story of two students sent down to the ordinary main station of the city to meet a man coming through. One man has read all about him and has been given a full description of what he looks like—the color of his hair, his clothes, and so forth. The other man has seen him before. Which one will pick out the man as he comes through?

Diagnosis is based on the same principle. If a man has seen some particular disease in a patient he gets impressions he cannot get from descriptions in his books. Many of our students go out without enough personal contact with cases and without having the principles learned from a textbook applied to the patient.

I have attended many clinics in various places, and the chief point is that the clinician is talking about the subject and not the patient. I have seen a man hold clinic on a patient with a certain lesion in the abdomen, and never turn down the bedclothes so that the students could see the abdomen or deliver a lecture without a demonstration on the particular patient of the condition he is talking about.

Dr. Benjamin Karpman (Howard University): From psychiatry to surgery is a far chasm though, perhaps, not as wide as we might sometimes think. I was struck by two points in Dr. Coughlin's paper. First, by the statement that on the taking of the history depends a great deal of the diagnosis. I think it is true that a great deal of unnecessary surgery is being done which is never published. Thousands and thousands of appendices, perfectly normal, have been removed. I do not submit, by any means, that the surgeon has made a mistake, but I do submit that a large portion of these surgical operations are done because a proper history was not taken. If a proper history were taken, including the mental side of the patient, we would discover that a great deal of so-called appendicitis is only pseudo-appendicitis and a wish on the part of the patient to be operated on. Many patients derive a tremendous amount of mental satisfaction from being surrounded by all sorts of people taking a special interest in them.

I recall the case of a woman who gave typical symptoms of appendicitis. She insisted on having a certain physician come to see her. He could not see her at the time. As long as he did not come, she continued having all the symptoms. The very moment he came and began to manipulate and examine her, all the symptoms disappeared and she was saved from an unnecessary operation.

I recall another case of catatonia with symptoms of elevated temperature

and rigidity. She was operated on. It turned out to be a case of dementia praecox. A patient comes to the office with a thyroid enlargement. The surgeon looks at it and says it ought to be operated on. The X-ray man says, "Burn it out." The internist says, "It ought to be treated medically," and the psychiatrist tells you that unless we take a complete psychiatric history of the case, we do not know whether the patient should be operated on, burned, treated internally, or, perhaps, treated psychotherapeutically. There are cases of goitre of psychogenic origin and I have to my credit a case I have cured purely by psychotherapy.

As demonstrated by Cannon, if a person suffers from a fear, it will manifest itself in or through the adrenal apparatus, and we know that symptoms of goitre are essentially symptoms of an individual in fear. In cases of goitre we often deal with individuals who are in a state of chronic fear, which manifests itself physically through the thyroid adrenal apparatus. Remove this psychic fear and the physical symptoms disappear.

I have seen cases of tumors which turned out to be pseudo-tumors, pregnancies that were only in the mind of the woman. Hysterectomies have been performed and everything removed from a woman's body which could possibly be taken out and still leave her alive, and she was just as bad after the operation as she was before.

Examinations are anathema not only from the students' point of view, but from the medical point of view also. It is a crude and savage method of testing one's knowledge. Indeed, examinations do not test the students' knowledge but rather the teacher's ignorance of the subject and how poorly he taught it. It often puts a student in a mental state quite incompatible with clear thinking. At examinations students often forget the very things they know best. There are so many other ways of finding out what a student knows. I have a class of sixty students. I do not give examinations. I feel that an instructor who does not by the end of the course know what they know, is not much of an instructor, and any student who is not able to convince the instructor how much he knows is a poor student. We need more individualized instruction.

Dr. J. Stewart Rodman (National Board of Medical Examiners): I, unfortunately, came in late and did not hear all of the paper, but I was very much interested in what I did hear as I happen to know that Dr. Coughlin is a very excellent teacher of surgery, particularly from the clinical point of view.

I believe that there is always difficulty in deciding how much surgical technic we should teach our undergraduates. It seems to me that the large part of surgical technic is a "superstructure" that ought to be taught after students leave medical schools. The great duty of teachers of surgery is to impress principles on their students, particularly minor surgery to begin with, then stressing the principles of surgery in the third year with the application of those principles to regions in the fourth year.

After all, it is too bad that surgery has gotten the reputation, or the feeling on the part of teachers of surgery themselves, that it is a separate entity. It is only a mechanical part of therapeutics, a part of general medicine, therefore the differential diagnosis, and, as far as the surgeon can impress on his class, surgical judgment is most important.

Dr. Beverly Douglas (Vanderbilt University): Some years ago the subject was brought up in this society that students should be started on the wards in

the third year and taken to the outpatient department in the fourth year. I think enough schools have experimented with that plan long enough to come to a conclusion on the subject.

At Vanderbilt we have always had the students on the ward during their third year and in the outpatient department in the fourth year. This plan has worked to great advantage to all concerned, for this reason: In the third year the student is given a great deal of time in the wards and can study the patient very thoroughly at his leisure. The entire morning is devoted to the care or at least the study of the few patients that may be assigned to him, and the work has been done at Vanderbilt, on the whole, I think, very thoroughly.

The students make rounds on these patients early in the morning, and on some one patient more than on the others. Then they carry on with the work that is necessary.

On the other hand, in the fourth year, the seniors see many students in the outpatient department. They are assigned to these patients and are given opportunity to study them over a short period of time, about one hour being allowed for a new patient and about fifteen minutes, as a rule, for a return case, unless more time is necessary.

They are allowed to study these patients as fully as they can in the time allotted. I should like to make this point: that this is more like the general practice which they will encounter very soon after they graduate than anything they could possibly get otherwise, and it seems to fit them in in a very good way to do minor surgery and certainly to size up the patients fully so that, if necessary, they can turn them over to surgeons who are equipped to do major surgery. In other words, they can recognize the serious case and be responsible for turning that patient over to the surgeon.

As to examinations, I think we should hold both oral and written examinations. The oral examination should aim at finding out how well a student can make a diagnosis or come to some conclusion about the diagnosis in a reasonably short time. The written examination, on the other hand, should be quite comprehensive and will enable us to find out what the student knows not only about the general materia medica of surgery (if we can put it that way) but also what he knows about the principles of surgery from every standpoint, from a pathological standpoint, from the standpoint of physiology, which is so important, and other standpoints which we all know.

I believe that putting the student on the ward in the third year and in the outpatient department in the fourth year will fit him better for the general practice of medicine, including minor surgery, than any other method we can adopt.

DR. WM. T. COUGHLIN: The experimental surgery course that we give seems to increase the student's interest a bit. Every operation, as I remarked, is for the purpose of demonstrating some fact in pathology, if it is possible to do so, or some fact in physiology. For example, we want the student to know something about what happens to a foreign body in the abdomen. A foreign body may be placed in the abdomen of one animal and infection put in at the same time, and in the next animal the material is put in without the infection. A day or so later the animals are killed and the postmortem examination reveals the changes.

It also gives the student an opportunity to become familiar with the ordinary catching of vessels and their ligation and the use of needle and thread, and so

forth, such things as he will need in minor surgical operations. He may not, if the class is large, get the opportunity, either in the outpatient department or in the hospitals, to do all of these things.

We have not yet begun the change of having the third-year men go to the hospital. We have been waiting to get the reports from other schools following this plan and I am glad to hear that they are favorable.

I should like to ask Dr. Douglas how he makes the change. Must you have two classes in the hospital at the same time at least once?

DR. DOUGLAS: We have the senior class divided into three groups, and these rotate, not twice in any one year. They shift during the junior year. The junior class is divided in the same way, and the groups rotate on the wards between medicine and surgery. We do not have two classes in the hospital at the same time.

Teaching of Graduate Surgery*

GEORGE J. HEUER
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There would seem to be no need, before an assemblage such as this, to discuss the desirability of graduate teaching of surgery in our medical schools. It is generally recognized that the four years of undergraduate medical work does not prepare the student to practice surgery. It is granted that some form of graduate instruction is necessary in order properly to equip students to practice surgery, and it is agreed that the initiation and conduct of forms of graduate teaching is the responsibility of medical schools. There seems to be no doubt in the minds of those concerned with medical education that additional advantages would accrue to surgical teaching and surgical practice were graduate teaching included in the educational program of more of our medical schools.

These points being agreed on, it remains to discuss the object of the graduate teaching of surgery, and by what means this object may be achieved.

Recently, I had the opportunity of studying a little more closely the status of graduate teaching of surgery in our medical schools. In an attempt to make a report on the subject to the American College of Surgeons, I sent a questionnaire to the medical schools of the country. Unfortunately, only 41 of the eighty-odd schools responded, so that I can speak only of this number; but sufficient information has been obtained for our present purpose.

The answer to the first question in this questionnaire gave the information that 16 of the 41 medical schools do not offer any graduate work in surgery. Whether the percentage of schools which do not include graduate instruction in their curricula will remain as high (40 per cent) when the study is completed, I do not know; but I am inclined to believe that it will. On more than one occasion I have made the statement that the opportunities for acquiring a thorough surgical education are far too few. Able young men, eager and willing to spend the years necessary for such an education, seek these opportunities every year and fail to find them. It is a situation which deserves the earnest thought of our medical colleges.

In the medical schools in which graduate instruction in surgery is given, its scope and duration vary. Broadly speaking, the medical schools may be divided into three groups: those which give less than 3 years, those

*Read at the Forty-third Annual Meeting of the Association of American Medical Colleges, held in Philadelphia, Nov. 14-16, 1932.

which give from 3 to 4 years, and those which give from 5 to 6 years of graduate instruction. I should like, if I may, to summarize the scope and duration of graduate instruction in these groups:

1. In the first group are 4 medical schools. In two schools students are admitted to graduate work after graduation from a medical school; in two, after the completion of one year's internship. A training in surgical pathology is omitted in two, is three months' duration in a third, and about six months' duration in the fourth. Training in a surgical research laboratory is omitted, or at the most of three months' duration. Experience in anesthesia is lacking, on the assumption that it has been acquired previously. Experience in the specialties of urology, orthopedic surgery and gynecology is acquired in a general service in 3 schools and in a two months' service in each specialty in a fourth.

Experience in the treatment of fractures is obtained in a general service and is stated to be very small in one.

Experience in general surgery varies from 6 months to 2 years, depending on the time devoted to laboratory work or the specialties in surgery. Operative experience is acquired chiefly by assisting senior surgeons. In 3 schools a senior surgeon assists the student in performing a small number of operations. In only 1 school does the graduate student assume the full responsibility in about 10 operations.

2. In the second group are 11 medical schools. In these the period of graduate instruction is 3 years in 4; from 3 to 4 years in 5 (in 2 of which a fifth year may be added); and 4 years in 2. Students are admitted to graduate work after graduation in medicine in 5 schools, and after completion of an internship in 6 schools. A study of surgical pathology is elective in 1 school, covers 3 months in a second, but is of at least 6 months' duration in the remaining 9. Experience in the surgical research laboratory is omitted in 2 schools, is fragmentary in 4, and obtained in a 6 months' to 1 year's period in 5. Experience in general anesthesia is slight, if any. Experience in urology, orthopedic surgery and gynecology is acquired in about a 3 months' period in each specialty.

Experience in the treatment of fractures is obtained on the general surgical service in the majority of schools and as a special discipline in 3 schools. A period of from 6 months to 3 years is devoted to general surgery, depending on the time given to laboratory or special work.

Operative experience is acquired by assisting the senior surgeons, by performing operations with the assistance of teachers, and, in 7 of the 11 schools by the independent performance of operations. In 7 schools the number of operations performed by the graduate student varies between 50 and 350. In 4 schools the graduate student performs a certain number of operations, but the number is not stated.

3. In the third group are 10 medical schools. In these the period of graduate training is a minimum of 5 years, and may be extended in a few instances to 6 or 7 years. Students are admitted to graduate work after graduation from a class A medical school in 3 schools and after completion of at least 1 year's internship, or its equivalent, in 7 schools. The study of surgical pathology is limited to 3 months in 1 school, but in the remaining 9 continues for at least 6 months and often a year or more. Experience in the surgical research laboratory is omitted in 2, is covered in 2 months in 1, and extends over a period of from 6 months to 1 year in 7. Experience in the administration of general anesthesia is slight in the majority of this group and covers 4 months in 1 school.

Experience in the specialties of urology, orthopedic surgery and gynecology varies depending upon the kind of departmental organization. In all schools the training in urology and orthopedic surgery is of at least 6 months' duration. In certain schools experience of 1 month to 1 year is also obtained in gynecology; in other schools the study of gynecology is omitted.

Experience in general surgery also varies, but, in general, covers at least one-half of the entire period of graduate instruction; in other words, 2½ to 3 years. Experience in the treatment of fractures is omitted in 1 school but is fairly large in the remainder.

Operative experience is gained by assisting the senior surgeons, by performing operations with the guidance of instructors, and by the independent performance of major operations. In 5 schools the number of operations performed by the graduate student varies between 350 and 1,000 or more, with an average of more than 500. In 5 schools the individual operative experience of the student is probably fairly large, although the number of operations is not reported.

This brief summary represents the scope and duration of graduate instruction as given at present in the schools from which I have received reports. In general, it takes the form of the resident or the fellowship system, and it would appear that surgical teachers agree that the resident or fellowship type of instruction, including a period of residence in a teaching hospital in continuous and close contact with patients, laboratories and teachers is the most promising form of surgical education which has thus far been devised. But the agreement would seem to stop there, for there is, as I have shown, great variation in the scope and duration of graduate instruction in our medical schools.

The question arises whether the heads of departments in our medical schools have different objects in mind which they seek to attain, or whether the variation in graduate teaching is the result of the different facilities, equipment, number of hospital beds, etc., which obtain in our medical

schools. The object which the graduate teaching of surgery seeks is but one—the development of men of a certain type How far we should try to carry this development is a question on which opinion may well differ.

In my own opinion, the medical schools should attempt to develop the highest type of surgeons—men fitted to continue the teaching of surgery in medical schools and to assume the leadership in the practice of surgery in the various communities of the country. I have my own idea what, from an educational viewpoint, these men should be. They are men who have had a rather broad fundamental training in the sciences related to medicine, and a specialized training after their graduation in medicine in surgical pathology, surgical diagnosis, preoperative and postoperative treatment, and in operative surgery. Their training in general surgery has included the specialties in urology, orthopedic surgery and gynecology. Their operative experience has been large, and acquired by assisting their seniors, by the performance of surgical operations under their direction, and by the independent performance of major surgical operations. In addition to this clinical training, they have acquired experience in and become imbued with the desire to pursue research, and they have acquired experience in teaching and in departmental organization. More and more I am realizing that all this is not enough; that the men I would seek to develop shall have acquired a spiritual experience as rich as their surgical experience, which enables them to follow only the highest ideals of medicine.

If we consider graduate teaching as exemplified by the three groups of medical schools from the viewpoint of developing this sort of men, I think we must say that the graduate teaching in the first group of medical schools is inadequate, as is also that of some of the medical schools in the second group, particularly those which give only a 3 years' course.

The reasons for this statement are these: First, a survey of the instruction from the viewpoints of the subjects taught and the time devoted to them would make it appear impossible to develop this sort of men, even with the combination of brilliant teachers and brilliant students. The time is too short to learn well the manifold things which the finished surgeon needs to know. Second, an actual experience of many years with graduate teaching shows that a longer course of training is necessary to develop this type of surgeon. Third, the growing experience of a group of surgical teachers, who, having tried the shorter period of graduate instruction, are finding it inadequate. And, fourth, the attitude of an increasing number of students, who, having taken the shorter periods of instruction, are asking for a longer period of instruction. Indeed, to these students graduate instruction in the schools I am discussing, while of great benefit, takes the form of preparatory courses in a surgical education

which must be completed elsewhere, either in the medical schools which give a longer training or in the difficult school of surgical practice. The number of medical schools which give such a longer period of training is, as I have shown in the above summary, very limited, and the student who seeks a further training in them finds great difficulty in getting it, not only because of the limitation in their number, but because of the difficulty in fitting into their scheme of organization.

My purpose, then, in bringing this subject before you, is two-fold: To call to the attention of those medical schools which do not offer graduate instruction the great need of such instruction, and to suggest to those schools which give a short or preparatory course of instruction that they may develop a more finished type of surgeon. I call attention to the first matter because I have found, as a result of a recent study, that probably less than one opportunity to pursue graduate study is available for every 20 of the best students who seek it. I suggest the second matter because an increasing number of students are finding the shorter period of instruction inadequate and are seeking the longer period of instruction, and because the experience of surgical teachers agrees with that of the students.

Not the least significant finding of my study is that while more than 50 per cent of surgical teachers give less than 4 years of graduate instruction, only 10 per cent of surgical teachers think that 3 years of graduate instruction is sufficient, 25 per cent believe that a minimum of 4 years is necessary, and 65 per cent are of the opinion that a minimum of 5 years is desirable.

Notwithstanding its shortcomings, if such they really be, the growth of graduate teaching of surgery should be viewed with satisfaction. Of the 41 medical schools of which I have data, 25 are actively engaged in some form of graduate teaching. When it is remembered that graduate instruction in surgery in any real sense was first begun in one school (Johns Hopkins) about thirty-five years ago, and not adopted by a second school until fourteen years later, it will appear that it has had an encouraging recent growth. Moreover, its results, in the form of men who have pursued careers in teaching and in practice, have been satisfactory.

DISCUSSION

DR. HUGH CABOT (University of Minnesota): I find myself very much in sympathy with what Dr. Heuer has said. I think at this particular moment, however, we are well advised to face what appears to be a very clear, and, I think, rapidly growing development of the very definite requirement by (let us say) the state and by the public, for the registration of the specialist.

It has been said very widely that there are too many specialists. On this point I suggest that there is no evidence that too many physicians are practicing

specialties, will be admitted generally; but that there are too many specialists, I think is, at least, doubtful.

If it be true that we shall shortly be faced with the question of deciding whether or not physicians are properly qualified for the practice of specialties, then, quite obviously, the development which Dr. Heuer discussed is essential, and it behooves us to be quite clear what we mean by a sufficient education, and, I think, we must begin by defining what we mean by surgery.

It is not very long since one could define the field of surgery as comprehending a very large amount of violence of a physical nature perpetrated on patients. It has been segregated into one group after another. We still speak of the general surgeon. I am beginning to be gravely doubtful as to whether I know what a general surgeon is and as to whether there is any such animal. Personally, I have come to the opinion that if there is any such thing as a general surgeon, he ought to be stopped by law; that the development of surgery has reached the point where it is impossible for one man to perfect himself in the details of the field of surgery—excluding the specialties long segregated, such as eye, ear, nose, and throat—that it is probably impossible today for a man to be really sound in the field of surgery with those exceptions; and that if we are to offer graduate instruction—and I believe that it must not only be offered but the offering must be increased—we should decide what we mean.

I suggest that there are certain well established subdivisions which should be excluded; that, for instance, we should not attempt in teaching general surgery to include some of the divisions that have already been sharply made. I am not clear whether gynecology ought to be included in general surgery, or whether urology should also be included. If they are to be included, the teaching must be more complete than it is at present, and I am doubtful whether it can be done in the period which Dr. Heuer suggests—five years.

I very clearly hold the view that in offering graduate teaching we should probably try at the start to segregate into a small group those men who propose to develop themselves as teachers of surgery; that they will require a very much longer training and a somewhat different atmosphere, but that we should at once try to enlarge our facilities for the teaching of men who can qualify as capable surgeons and allow the other group to be segregated in a few places where the atmosphere is particularly well suited to the development of teachers.

For the general group I believe that a five-year period is sufficient, if it is properly arranged. The question at once arises whether it is desirable in a teaching course of that kind to suggest (I think one should not go further at the start) that these gentlemen might all properly be candidates for advanced degree. I think there is something to be said for the requirement of a degree which, so to speak, puts a definite stamp of approval, of university grade, on the work done. Obviously, if that degree is to be the Master's degree, the requirement must be very much larger, very much longer, than the ordinary Master's degree in other subjects, but that is already the case where the Master's degree is being given in surgery by various institutions.

I believe that the requirement of a degree is desirable, though I would by no means lay it down for an essential requirement, but I think we must define our terms; say what it is we are preparing these people for, whether for teachers or thoroughly sound practitioners of surgery; and particularly must we be pre-

pared to turn out in sufficient numbers men who will qualify as specialists in surgery.

Not the least part of such an organization would be to sift out those people who, though very wishful to carry on a career of violence under the guise of medicine, are really not suited to the practice of surgery. We must not be afraid to cull out a very large number of people whose only qualification for surgery is a desire to live in an atmosphere of excitement.

Time is an important element. I do not believe that the training of an expert can be carried on in a relatively brief period. I believe that there is something hard to define, which one might call "atmosphere," which takes time to develop. Whether or not what we vaguely refer to as "surgical judgment" is a thing which can be developed, or whether it is congenital, I am still doubtful. I am perfectly aware one sees youngsters of extraordinarily mature judgment, and that one sees oldsters who have no judgment, and never will have. I suggest that those who hold themselves out as trainers of specialists in surgery should study very carefully this question of soundness of judgment, the roundness, perhaps, of judgment of their candidates, and be quite cruel at times in refusing qualifications to people who, though very expert, very deft, with tremendous power of work, still are likely in the long run to do more harm than good.

Dr. William T. Coughlin (St. Louis University): Dr. Heuer also has a big subject. The supply of surgeons at the present time, I think, exceeds the demand, but we had better not do anything that will make the demand exceed the supply.

I quite agree with Dr. Cabot in regard to the need for two distinct classes: (1) the teachers of surgery, those who want to become teachers of surgeons; and (2) those who want merely to become qualified to do major surgery.

There are some seventy-odd medical schools. I do not know whether each school is ready to qualify five men every year. I do not think so. In fact, I know we are not. If we could qualify four men, yearly, it would be about our limit. There does not seem to be very much agreement about the time it requires to learn surgery, nor as to what it is that is necessary for the student to learn. That could all be worked out.

In view of the fact that the schools at the present time are not able to turn out each year a sufficient supply to replenish those that are going, would it be possible for schools to give a three years' course, perhaps, in the fundamental sciences, and then apprentice these men to certain well known and well qualified practitioners of surgery who are quite able to qualify them, I might say, technically? That would do very well for those who are not expecting to become teachers of surgery and the schools might concentrate their efforts on the further training of those who are expected to become teachers.

To give the young man who is going out total responsibility for the patient, of course, will put him on his mettle as nothing else will. But, as I said before, I do not believe that most of the schools can do that with any show of success.

Dr. E. Stanley Ryerson (University of Toronto): We have been in contact with the training of men in this direction and recently have changed our method to an experiment in the direction of training along the lines which Dr. Heuer has outlined.

I am just a little fearful that the pendulum may be swinging a little bit too far away from the necessity of a knowledge of anatomy and physiology. In the

British method a man has to pass a severe test in anatomy and physiology in his primary examination for what is known as the Fellowship in the Royal College of Surgeons. He has to revise his knowledge thoroughly in the fundamental sciences.

These men in our course are having great difficulty in finding the time, while getting their training in surgery, to prepare themselves in anatomy, physiology and pathology. They are becoming expert surgeons. Several of them have succeeded very well, from a technical standpoint, but I feel that they are a little lacking in fundamental training. That aspect of the subject must not be lost sight of in the graduate training of a student of surgery as a specialty.

Dr. I. S. Ravdin (University of Pennsylvania): I am pleased that Dr. Ryerson said what he did about the training in the fundamental sciences as preliminary requirements for entering the practice or teaching of surgery. There is a difference between the operator who is the purely technical man, and the surgeon who not only has the requirements of the technician, but is trained sufficiently to be able to administer adequate preoperative and postoperative treatment.

It would seem well worth while for men who are being especially trained for the teaching of surgery and also for those who are to be trained for the practice of surgery, that they make themselves proficient in the preclinical sciences, over and above the training which has ordinarily been given in the medical school, before beginning training in the practice of surgery.

If the ultimate purpose of surgery is to restore function, there must be a very definite knowledge of normal function before the technical methods attempting to restore function can be introduced. In our fellowship system at the University of Pennsylvania, we attempt to provide adequate training to make the more proficient type of surgeon.

Dr. Heuer has pointed out that a period of three years is probably inadequate. These individuals, however, come to us having fulfilled a required internship in a well known hospital and in the majority of instances have had some additional preclinical training.

Approximately 30 per cent of their time is spent in a research laboratory in the three years they are with us, either in surgical pathology, research surgery, or one of the fundamental preclinical sciences. I cannot help but believe that when they leave us they are better technical surgeons, better surgeons from the standpoint of the development of sound surgical judgment, and in the ability to restore function, than men who have performed a thousand or more major surgical operations but who have not had that type of training.

Dr. George J. Heuer: My paper was intended, in general, to point out the trend of graduate teaching of surgery in this country, and that trend would seem to be toward a longer period of instruction than the shorter period that obtains in many of our medical schools.

Some of the discussors have raised questions of very great importance in the general subject of graduate teaching.

Dr. Cabot inquires what is a general surgeon. It is difficult to state exactly what he now is, but it seems to me that a comprehensive course in surgery requires some training and experience in the various fields of surgery, not with the idea that the man will practice these specialties from the beginning, but that he will be sufficiently acquainted with the various specialties of surgery so that he

may be familiar with the diagnostic methods which are necessary in the diagnosis of these conditions.

If a man should desire to go into the specialty of urology, I would say he should have an additional training after the training I have outlined, and so with any other specialty which might be suggested.

I fail to see the need of trying to develop two groups of men, one a group of teachers, the other a group of practitioners. If one looks forward to the future of surgery, it seems to me that there is great value in having men go out as practitioners of surgery who are teachers of surgery, because they will, in any community to which they may go, influence a certain group of young men, and if they are solely trained as practitioners and not as teachers, they will lose a function which they well might have.

Dr. Coughlin raised the question of the inability of the schools to turn out a certain number of men. My remarks were intended to call the attention of the medical schools to the great need of graduate teaching. I know that many medical schools which do not give graduate teaching could do so. I do not see the need of determining any one number of men. It seems to me if each medical school—say there are seventy—would each year turn out one properly trained surgeon, it would be an enormous contribution, and we need not speak of four or five or any other number in questioning the value of graduate teaching in these schools.

Dr. Ryerson and Dr. Ravdin mentioned the value of the fundamental sciences in this training. I assumed in my discussion that such training was being required in the course of the education of surgeons and certainly such training is very, very essential.

It is true, and I can speak from experience, that an increasing number of students who have taken three years of surgical education at various schools are applying for a longer period of training. In other words, they do not feel themselves that their training has been adequate. We usually stop their training, whether five years, or six years, or seven years, but I think the advantage of graduate training in a medical school is that one can leave it to the heads of departments to determine when a man is qualified to go out into practice, and if that requires five years, well and good; if it requires six or seven years, well, there is at least someone who is responsible for that man and he should not send him out until he is satisfied that he is qualified to practice.

Present Status of the Teaching of Psychiatry*

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Psychiatric education in America has been studied by making visits to all four-year schools in this country and to two outstanding Canadian medical schools. In this discussion of the present status of psychiatric education in undergraduate-medical schools I shall endeavor to bring out the following:

First, some of the outstanding facts noted concerning psychiatric education in the college year 1931-1932; and

Second, attitudes and criticisms of deans, professors of medicine and professors of pediatrics toward psychiatry with a general discussion of psychiatry as one of the fundamentals in general medical training and of measures to break down the present tendency towards isolation through the development of liaison relations and better teaching.

The teaching of psychiatry can be considered as being reasonably complete in thirteen schools, while twenty-nine schools, or 42 per cent of the total group visited, have not thus far created clinical facilities to be used in the general teaching schedule. The present lack of psychiatric research and budgetary limitations are seriously handicapping the development of psychiatry. For instance, the total amount of money expended in the teaching of psychiatry by all medical schools is $599,040.00. This is far less than the endowment for one subdepartment in one school which thus far has not developed any facilities for the teaching of psychiatry. The general psychiatric teaching personnel was found to be most inadequate to meet the ordinary demands for general medical teaching. Sixteen of the sixty-eight schools contacted, for instance, have a total teaching staff of only one or two part-time men. Teachers of psychiatry, apparently, were appointed without any clear-cut standards concerning qualifications of training or experience. This lack of psychiatric teaching personnel was found to be most acute in 85 per cent of the schools contacted. The content of the present psychiatric curriculum indicated many gaps and deficiencies, especially in the requisite preclinical foundations. This may be illustrated by the following resumé.

Schools teaching psychiatry in preclinical years, 32.

Psychobiology, 13. (Syracuse, Pennsylvania, Buffalo, Johns Hopkins, Iowa, Cornell, Yale, McGill, Toronto, Texas, Vanderbilt, Colorado, Medical College of Virginia).

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Psychopathology, 21. (Syracuse, Pennsylvania, Pittsburgh, Maryland, Johns Hopkins, Cincinnati, Nebraska, Iowa, George Washington, Oregon, Cornell, Columbia, Yale, McGill, Toronto, Michigan, Texas, Vanderbilt, Emory, Colorado, Medical College of Virginia).

Medical Psychology, 11. (Albany, Nebraska, Creighton, Boston, Harvard, Tufts, George Washington, California, Northwestern, Long Island, Washington).

Schools teaching psychiatry in clinical years only, 36. (Rochester, Vermont, Temple, Jefferson, Hahnemann, Western Reserve, Louisville, Howard, Georgetown, Ohio, Indiana, Southern California, Stanford, Minnesota, Wisconsin, Marquette, Illinois, Rush, Loyola, Long Island, New York Homeopathic, Detroit, Kansas, Oklahoma, Baylor, Texas, Arkansas, Tennessee, Meharry, Georgia, Medical College of South Carolina, Duke, St. Louis, Tulane, Virginia, Medical College of Virginia).

Clinics given in second year but no preparatory courses, as psychobiology, etc., 1. (College of Medical Evangelists).

Schools giving no courses at all, 1[1]. (University of Chicago, Graduate School).

Schools where teaching is limited to the fourth year, 17. (Jefferson, Hahnemann, Western Reserve, Georgetown, Ohio, Indiana, Stanford, Rush, Long Island, Kansas, Oklahoma, Baylor, Arkansas, Tennessee, Georgia, Medical College of South Carolina, Virginia).

Schools where teaching is limited to the third year, 1.[2] (Minnesota).

Schools teaching child guidance, 20. (Rochester, Pennsylvania, Buffalo, Johns Hopkins, Cincinnati, Louisville, Nebraska, Harvard, California, Illinois, Cornell, Columbia, Yale, McGill, Toronto, Texas, Washington, Colorado, Virginia, Medical College of Virginia).

Schools offering elective work, 21. (Rochester, Pennsylvania, Johns Hopkins, Cincinnati, Nebraska, Creighton, Harvard, Southern California, Oregon, Illinois, Northwestern, Rush, Long Island, New York Homeopathic, Cornell, Columbia, Yale, McGill, Toronto, Colorado, Virginia).

For comparative purposes an analysis of the curricular hours devoted to psychiatry is shown in the following:

Total number of hours devoted to:	Average number of hours per school:	Medium number of hours per school:
Psychiatry, 5,263	77.4	72
Neurology, 5,012	73.7	70
Pediatrics, 11,770	186.8	180

In the discussion of a psychiatric curriculum the word "standardization" should be absolutely taboo. Likewise, it is not a question of the hours devoted to the subject but a question of the method of teaching and the content of teaching. In all fields of progressive education it is now accepted that self-education is the proper method of learning. This means that the student should be given an opportunity to think for himself and to work directly with clinical problems under the leadership of a compe-

1. During the year of visitation, an 11 hour course was given during the senior year for the first time. Noteworthy liaison developments in the department of pediatrics have developed.
2. Following visit, noteworthy changes and additions were made in psychiatric curriculum through the use of clinical material in the Minneapolis General Hospital.

tent instructor. The teacher, therefore, becomes a guide or a director. Didactic methods of teaching, which rob the student of freedom in thinking and frequently destroy his interest, have no place in the teaching schedule. Direction of the activities of the student's reading, clinical study and observation of mental cases, followed by free discussion with the teacher, are necessary to the teaching of psychiatry. It is not to be expected that the student will cover, or that the instructor will attempt to teach all phases of the subject. It is agreed, however, that both the student and the instructor should attempt to cover the essentials, mastery of which will enable the student to think for himself and to develop further understanding of those problems in general and special practice. This is only possible if medical psychology, psychobiology and psychopathology are presented as a sound foundation for later clinical study.

Psychiatry is probably in a more difficult position than the other fundamental subjects of general medical training. This is readily ascribable to the general neglect of the social sciences during the college course. Without the early period of preparation and initiation in the social sciences, it is most difficult for the student to understand the general viewpoints of psychiatry and the importance of considering the total integrated individual in his social setting. Further confusion in the initial preparation of the student distorts his viewpoints, especially the present transitional and unsettled state of general psychology. Any adequate program for the future must improve this unsatisfactory situation in the preparation of the medical student and bring about a closer correlation between the fields of the social and the biological sciences.

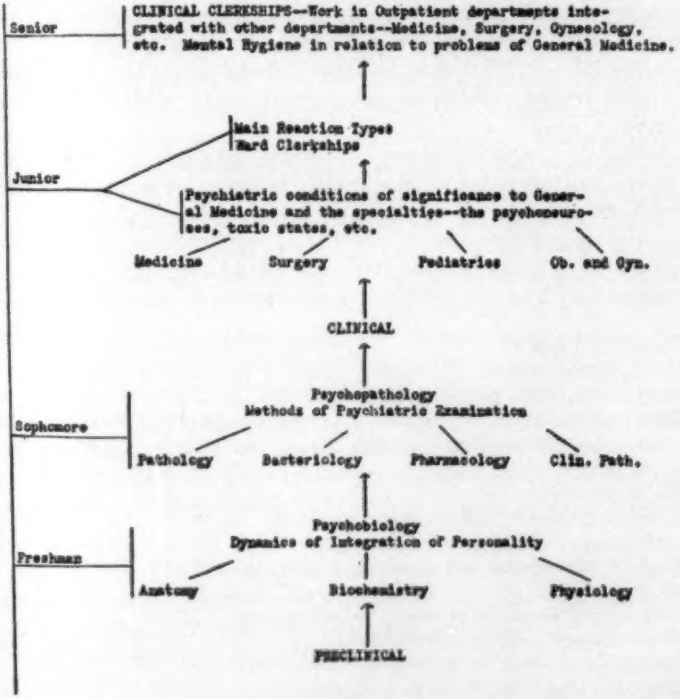
In discussing these matters with the teaching personnel in psychiatry, I received the impression that there is a marked lack of cohesion in teaching objectives and methods. With few exceptions none of the heads of the department of psychiatry have ever entered into a general discussion of teaching problems as a whole. Perhaps, medical education could utilize methods for getting together to talk things over which have been well developed in our secondary schools and colleges. Apparently no school for training teachers in medical schools exists, and there is no association of medical teachers which devotes itself entirely to the discussion of problems in the large field of medical pedagogy. In the future, the lack of opportunities to discuss these problems intra- and extra-departmentally should be remedied.

It seems to me that this can readily be done in several ways; for example, through a general discussion among the heads of the departments of psychiatry. This may easily be arranged since it was found at the last meeting of the American Psychiatric Association that more than one-half of those now engaged in psychiatric teaching were in regular attendance.

This objective of this Association could be emphasized with a great deal of benefit. Other professional associations, composed largely of men who are teachers, should concern themselves more with the general problems of medical education (American Anatomists Association, various clinical groups, American Psychological Association, etc.). This would mean a pooling of interests and experiences regarding teaching methods, objectives, special problems, experimentation, etc., and certainly would lead to a closer liaison development between the various fields of medicine. It should also change the present unfortunate tendency of begging for additional hours complained of by the deans and lead to a redistribution of hours and avoidance of waste and a closer attention to the relations between the various departments in their desires to study the individual as a whole in health and in disease.

I wish to present a proposed organization of the curriculum as follows:

PROPOSED OUTLINE FOR PSYCHIATRIC TEACHING OF FUNDAMENTALS



In this organization the importance of preclinical teaching of the fundamentals is shown, and the definite recommendation is made that some instruction in psychiatry should be given during each of the four years of the medical course. Such a curriculum should, at least, enable the student to think, not in terms of special organs or symptoms, but of the whole living organism as a person reacting physically and mentally to changing environmental demands. It should lead to a change in the departmentalizing tendencies of the somatic sciences which have previously frustrated the interests of the student in psychiatry. Moreover, this interest is never revived by fitting together the factual data of anatomy, physiology, psychology, neurology, etc. The conception of a living personality has to be given to students and kept alive in their minds while they study the physical structure and processes of the human body.

Instruction in medicine is not primarily an end in itself but a means of applying organized knowledge to certain human needs through the medium of a trained personnel. Psychiatric teaching, as a part of general medical teaching, must be judged on this basis. Is it advancing knowledge through research? Does it contribute to the preparation of doctors for the realities of general and special practice (of which the first is the more important)? Can it broaden their sphere of usefulness to the public? Can psychiatry become an accepted part of general medical thinking and procedure?

Attitudes of Deans, Professors of Medicine and Professors of Pediatrics: A most important aspect of these studies, however, seems to me to be the attempt to determine the attitudes of deans, professors of medicine and professors of pediatrics toward the field of psychiatry. I am very much indebted to this group for their frank and helpful interviews. The opinions expressed were recorded verbatim and summarized as follows:

Attitudes and Criticisms	Deans	Prof. of Medicine	Prof. of Pediatrics
Isolation of Psychiatry	33	37	18
Criticisms concerning psychiatric teaching	27	36	2
Difficult terminology	17	13	6
Against psychiatric personnel	12	25	4
Against psychoanalysis	7	21	4
Status of department	8	7	
Approve of preclinical and premedical courses in psychology and psychobiology	6	2	
Critical of psychologists and mental hygienists	5	2	29
Lack of research	4		
Believe psychiatric education should be postgraduate	1	2	
Attitudes toward psychiatric consultations		11	3
Against child guidance as unscientific, faddistic			4
Critical of mental hygiene movement			15

There seems to be a growing recognition of the importance of psychiatry on the part of these three groups. The deans especially expressed their desire to develop additional psychiatric facilities, and since the professors of medicine and professors of pediatrics indicated that approximately one-third of the work in their respective fields constituted psychiatric clinical problems, their future aid in the development of a more adequate teaching of psychiatry was insured. The lack of emphasis in teaching schedules and the lack of liaison developments in centers where psychiatry is fairly well represented was of interest in these studies.

These wholesome attitudes and criticisms toward psychiatry should be helpful in developing future psychiatric education as a part of the general medical training in arranging for a closer integration of psychiatry with the other medical branches. In fact, such an integration and liaison development with medicine offers many teaching possibilities and is proving successful in the following schools: Nebraska, Harvard, Stanford, Cornell, Columbia, Yale, McGill and Colorado. Likewise, noteworthy liaison developments, where the psychiatrist often serves as a part of the pediatric staff, have developed at Johns Hopkins, Harvard, Yale, Cincinnati, Louisville, Nebraska, Stanford and California.

The uniform complaints from the deans and professors of medicine concerning isolation requires discussion, and future programs should deal with the breaking down of this isolation and should lead to a modification in both teaching and clinical methods in the light of needs, facts and ideals. Complaints of isolation are, of course, not new in the activities of medical school departments. Considerable thought and discussion has for years centered around the isolation of the preclinical from the clinical branches, and medical school curricula continue to suffer in this regard, with considerable duplication of effort, waste of the students' time and lack of correlation. For instance, the isolation of the teaching of anatomy from that of surgical anatomy; isolation of neurological anatomy from that of clinical neurology; in fact, almost a complete detachment of anatomists, physiologists and biochemists from the clinical branches. This has resulted in most serious damage to both groups and certainly has distorted the viewpoints of the medical student regarding the study of the parts and functions of the individual instead of the total individual (the integrated whole).

As a result of this overmechanization of the preclinical years, the student looks on psychiatry as a mysterious subject, something that is different, something that cannot be understood and something that cannot be studied through a microscope and instruments of precision. Then, again, the psychiatry of the past was hidden away in institutions and did not ap-

pear to be the concern of the general practitioner of medicine. These insidious influences of the past (fortunately to a less extent in the present) indicate an attitude among physicians, which, although not hostile to psychiatry, was certainy indifferent and a great factor in its isolation. I do not recall in my student days of ever having a psychiatric problem discussed in the clinic or at the bedside by any of my instructors outside of the department of psychiatry. A passive and nonreceptive attitude toward psychiatry by other teachers will certainly inhibit any real interest arousal on the part of the medical student. These attitudes, of course, have resulted in ostracising problems of psychiatry from the general hospital. Therefore, in the past there appeared to be not only the desire but almost the obligation to treat mental patients in special hospitals and to consider these patients as problems of chronicity that cannot be treated successfully. The interviews with deans, professors of medicine and professors of pediatrics show very clearly at the present time that we are in a transition period. The successful liaison activities between these departments are likewise removing the barriers of isolation to the mutual advantage of both the psychiatric and the other groups. There has been an increasing recognition of the therapeutic possibilities in psychiatry.

The following table may be helpful in analyzing and summarizing these important complaints concerning the isolation of psychiatry from the other branches of medicine along with corrective modifications based on the opinions and experiences of outstanding groups of deans, psychiatrists, professors of medicine, professors of pediatrics and even of the students interviewed:

CAUSES OF ISOLATION	CORRECTIVE MODIFICATIONS
1. Inadequate psychiatric teaching. (Often limited only to clinical years). General neglect of psychiatry in medical thinking and practice.	1. Development of psychiatric teaching in the future on a parity with that of general medical teaching; breakdown of overspecialization and overdepartmentalization and presentation of psychiatry as a part of all fundamental medical training; development of liaison and correlation activities with other groups; teaching during each year of medical course.
2. Institutional aspects of psychiatric work.	2. Development of psychiatric departments in general hospitals bringing psychiatry under the same roof with general medicine.
3. Traditional aloofness between the various groups (asserted by one, sensed by the other).	3. Will disappear after the above developments have taken place.

4. Emotional causes: other fields say that psychiatry deals excessively with sex problems and attracts unstable individuals; terminology considered difficult, etc.	4. Here the medical profession is reflecting the traditional attitudes and prejudices of the past. These will disappear in proportion as there develops an insight and understanding of the methods of clinical psychiatry and acceptance of the fundamental principle that the physician's responsibility always concerns itself as much with mental and functional disorders as it does with physical disorders.
5. Psychiatrists' neglect of physical studies.	5. One or more years of intern training in general medicine before specializing; development of standards for qualification in psychiatry.

In this brief paper time or space will not permit a discussion concerning the terminological confusion centering around psychiatry. A close analysis of this situation shows that in the past isolation of psychiatry has contributed quite a lot to criticisms on this basis. Words which are new and which embody the meaning applied to new sciences always have the tendency to arouse in the uninformed a feeling of resentment, particularly when these words are not found in up-to-date dictionaries. New sciences must create new terminology in order to impart their meaning. A comparison of a group of accepted psychiatric terms with a similar group of general medical terms chosen at random shows that, in general, root words are used, with fewer names of individuals, in psychiatric terminology. For instance, the word "schizophrenia," which causes so much trouble, is based on two Greek root words meaning "split-mind." Words with no sound root meaning are few and far between in psychiatry, whereas they are many in general medicine, to wit: syphilis, shingles, diabetes, cancer, etc.

The greatest criticism of psychiatric terminology noted in these studies apparently were directed toward psychoanalytical terms or toward a large series of words which have to do with mental dynamics, such as "regression," "conversion," "dissociation," and the like. These words play the same rôle in psychiatry as "allergy," "anaphylaxis," etc., play in general medical thinking. However, medical terminology must grow as the various branches of medical sciences expand in knowledge, and we must be more charitable with each other in this connection. Measures to break down isolation should, in general, clear up this terminological confusion.

Those of us who are in the field of psychiatry should not be unmindful of our responsibility in evaluating and accepting the above criticisms. Certainly, we ourselves have contributed somewhat to the isolation of our field. We need and desire the helpful advice and backing of this Associa-

tion in meeting the challenge of the future whereby we hope psychiatry will not be considered the mysterious preserve of a few specialists but may be accepted as a fundamental part of all medicine. When this is done, we may see that as medical men we are dealing with the problems of both mental and physical health and not with one or the other. This will mean that a real parity will gradually develop between the departments of psychiatry and those of medicine, surgery, obstetrics, gynecology and pediatrics. In these studies I received the fixed impression that, after all, the main objective of psychiatric teaching is to develop adequately trained physicians generally able to recognize and deal scientifically with situations as they occur in the ordinary run of patients. The problems of psychiatry do not differ from but are a part of the problems of general medical education with special contributions but with the same obligation and objective—that of helping man.

SUMMARY

In this paper the high spots in recent studies of psychiatric teaching have been referred to briefly. They are:

FIRST: The teaching of psychiatry may be considered reasonably complete in thirteen of the sixty-eight schools visited. (However, arrangements to improve teaching are now being made in approximately thirty of the remaining schools.)

SECOND: Twenty-nine schools, or forty-two per cent of the total group, have not thus far created clinical facilities to be used in the general teaching schedule for psychiatry.

THIRD: There is a general budgetary limitation seriously handicapping the development of psychiatry in our medical schools and a marked general lack of research in this field.

FOURTH: A proposed psychiatric curriculum is presented, whereby this subject may be taught during each of the four years of medicine. This does not mean additional hours, as much as a redistribution of hours and a closer correlation with the other fields of medicine, especially in breaking down the gaps in the teaching of preclinical and clinical years, thus having the first-year student familiar with the concept of the living personality and problems of adjustment. Psychopathology, like the rest of pathology, is essential as a preclinical foundation.

FIFTH: Important liaison developments with the field of general medicine and pediatrics in the various medical centers has been emphasized.

SIXTH: The attitudes and criticisms of deans, professors of medicine and professors of pediatrics towards psychiatry were reviewed in the order of frequency.

SEVENTH: An analysis of the present isolation of psychiatry from the

other fields of medicine with suggested corrective modification was presented.

DISCUSSION

Dr. Ralph A. Noble (Yale University; Director of Division of Psychiatric Education, the National Committee for Mental Hygiene): Dr. Ebaugh has given an estimate that there are 13 medical schools out of 68 visited in the United States and Canada which are giving a reasonably complete teaching of psychiatry, and that 42 per cent of the 68 schools give no clinical teaching in this subject. The paper has shown the need for stressing the psychiatric point of view throughout the whole medical course. This does not necessarily need a large grant of hours for the teaching of psychiatry.

Medicine is a study of the whole personality, of the external and internal environment of the patient, and the students of all branches of medicine should be taught to understand how to evaluate the personality of every patient.

Psychiatry has suffered greatly by its isolation from the remainder of medicine. This isolation can be overcome partly by the development of liaison activities with other departments of the general hospital. The development of a strong department of psychiatry is most advisable in every university, and the proximity of psychiatric clinics to the general hospital is in every way desirable. More than this, facilities for consultation services by the members of the staff of the psychiatric clinic in all the clinical services of the general hospital, and the demonstration of the psychiatric aspects of ordinary cases seen in the general wards, are most advisable. Such teaching will benefit all the clinical departments of the general hospital as well as the Department of Psychiatry itself.

Last year I had the pleasure of arranging such a liaison between the department of psychiatry at Yale University and, first of all, the department of medicine. The professor of medicine kindly arranged for me to be a member of the medical unit, and I was asked to see any cases in the medical wards which presented any problems of psychiatric interest. The interns found more and more patients with psychiatric problems, and one had no difficulty in securing ample material to give a weekly demonstration to the students of the medical unit, showing the interesting psychiatric problems presented by the ordinary cases in the medical wards.

After one term the professor of surgery made a request that a similar consultation service with teaching demonstrations should be arranged in the surgical unit, and weekly demonstrations were given.

Certain members of the staff of the department of psychiatry are now assigned to the various clinical services of the general hospital, and all the patients in the general wards are available to these psychiatrists. The student allotted to a patient, therefore, has the benefit of personal consultation with a psychiatrist regarding the problems presented by the patient.

Psychiatry should be looked on as a part of medicine, not merely as a specialty. No student can be trained adequately as a physician without a knowledge of psychiatric principles. The training of teachers in psychiatry is, of course, a postgraduate matter, but every student of medicine should be taught to understand the reactions of the body and the mind to external and internal forces, and the psychiatrist can do much toward supplying the student with that understanding of the whole personality which is so essential to a well-rounded medical education.

Certain speakers had emphasized the fact that surgical judgment is present

in some practitioners of medicine and not in others. It was inferred that this valuable asset was largely inborn in the surgeon. Although this may be so, the surgeon cannot make a sound judgment in many cases without understanding the personality of his patient. Sound teaching in psychiatry will help him to obtain the necessary material on which he can evaluate the personality and make his judgment.

As an illustration of this fact, take the case of a woman of 58 years. This woman had been admitted to a certain hospital three times in the past eighteen months. She had given much trouble on the last occasion, and evidently after her return home she had been the cause of much anxiety to the local practitioner, for he wrote, "Will you please re-admit Mrs. So and So; really something must be done for this woman." We looked up her previous record, and found that what was done on the previous admission was the removal of her uterus, ovaries and tubes. She had had twelve children, most of them having grown up. She stated that her husband still insisted on intercourse every night of his life, even on the night she was discharged from hospital on the last occasion. This time she returned with exactly the same symptoms as before the operation was performed, but she said she was sure she had a cancer. She confessed that the only time she had relief from her husband was when she was ill. Her illness was an escape from her domestic situation. She was easily persuaded to stay with her grown-up children for several months. The matter of her home life and sexual life had never been inquired into previously. She found that her only means of sexual relief from her husband was to be ill, and this she accordingly was.

In this case the surgeon had based his diagnosis on the symptoms complained of by the patient, and probably certain physical signs which may have supported the diagnosis, and operation was decided on. But the hospital records gave no indication of an inquiry into the personality of this woman or of her unfortunate domestic situation.

No medical school can be looked on as supplying an adequate training to students which does not give psychiatry its proper place. Every university has its own traditions and its own problems, and will deal with its curriculum according to the financial facilities available and the qualifications of its teaching staff; but there are certain minimum requirements of psychiatric teaching which should be met, and it is to be hoped that efforts which are being made to see that these minimum requirements obtain in all medical schools, will be sympathetically supported.

Dr. A. Warren Stearns (Tufts College Medical School): I have been in touch with Dr. Ebaugh and it has been very helpful to talk over with him what has been done to spread the gospel of psychiatry. I have been something of a heretic myself, having administrative responsibility and being unable to respond to all the beguiling influences that psychiatrists have put around me. I should give a somewhat different explanation for the failure of psychiatry to take a stronger hold on medical education.

In the first place, I think the missionary always meets with opposition. Even so great a missionary as Jesus Christ did not find the world ready to accept everything he said, so I think psychiatrists in their missionary zeal ought to be a little more patient.

Secondly, there has been an assumption on the part of psychiatrists, consciously or unconsciously, that they have the key to wisdom, and that their insights embody something a little more profound than the insights of the average run of doctors.

For instance, in the case cited here, I should dispose of it by saying it was poor surgery if a surgeon operated on a person without going into the history and finding out what was the matter with the patient. I should not feel that the psychiatrist was called on to admonish him.

Also, I feel that we pyschiatrists have claimed a little too much for our specialty in our zeal. We have gone into the relations between man and wife, and relations between father and child, relations between the aged and their offspring —all of those intimate personal relations of life, which, after all, are dealt with by all persons. The wise clergyman deals with them well. The wise lawyer deals with them well. The wise man, wherever he is found, knows how to bring up his children—how to treat his wife tenderly, and there is a certain amount of arrogance in assuming an air of importance in these matters.

And, so I feel that quite a little of the resistance psychiatrists have met in getting deeper into medical education is due to the fact that oftentimes they do not use those subtle methods which they preach to others.

DR. BENJAMIN KARPMAN (Howard University): The general impression that one gets from Dr. Ebaugh's paper is that as yet there is very little psychiatry being taught in various medical schools. I think this is based largely on two preconceptions that are firmly imbedded in the minds of various teachers. One preconception is that you must have a psychiatric institute in order to teach psychiatry. The premise is wrong and we know from logic that if the premise is wrong all conclusions are wrong. I submit that you do not need a psychiatric institute to teach psychiatry, but you do need a general hospital, so that every patient should be studied from the mental point of view.

I remember one of my teachers saying, "Gentlemen, you are not treating an organ, not a uterus, or a stomach, but a body that has a uterus or a stomach. Remember that we are dealing not with a particular disease but with a human being that has a particular disease, and we must always ask ourselves what is the patient's mental reaction?"

We do not need a psychiatric institute for that. I believe that just the same as physical and laboratory examinations are made on every entering patient, a psychiatric examination should be made of every patient admitted to a general hospital. The record of the psychiatric condition of every patient should be a part of the examination.

I might say, that if the pediatricians knew more about mental conditions, the psychiatrists would not have so many patients later on. If the pediatricians applied a little psychiatry during childhood, many neuroses and psychoses could probably have been prevented.

Another preconception is that in order to teach psychiatry we must teach psychoses. That is not true. The general practitioner will very seldom see a true case of psychosis. If he does, he simply has to go to the court and certify to it. What he will largely have to deal with in later life are the neuroses and many somatic and psychic disturbances for the teaching of which we do not need a psychiatric institute but a general hospital.

Therefore, I submit that the medical schools that have held off the teaching of psychiatry because of a lack of a psychiatric institute, should use the general hospital, which may be converted into a psychiatric institute. I train my students to take histories on general hospital cases.

I want to take issue with Dr. Ebaugh on the training of students preliminary to the teaching of psychiatry proper. It seems that we are trying to reverse the evolution of psychiatry. How do we learn it? By clinical cases! And why should we reverse the whole process and teach concepts first and psychiatry later? Psychiatry is almost in a beginning stage. The concepts of psychobiology or psychodynamics are still very vague, and I submit that we ought first teach the students clinically and only later, perhaps as graduate work, theories.

The medical student of today is very practical. He will not take anything that he cannot apply in later life. That is why a student having graduated from a school which gives an otherwise good course in psychiatry, is unable to apply it in his daily practice, because he is filled up with psychoses instead of neuroses and principles and theories instead of practical ward work.

Dr. G. Canby Robinson (Cornell University Medical College): We are convinced that, in order to give medical students a proper appreciation of the fact that patients are made up of both mind and body, the psychological problems of medicine should be brought to the students throughout their clinical work as far as this can be done. We have emphasized the fact that the student must study human distress as well as human disease. We believe that the psychiatrist is the one to give a proper balance to medical education so that the mind and body must be considered inseparable.

We are endeavoring to interest all the clinical departments to cooperate with the psychiatrists and to have psychiatry permeate the work of all the various departments of the hospital by having psychiatrists available to study any problems that they may find in the various divisions of the hospital. It has been our experience that when psychiatrists are freely introduced into the wards of the general hospital, they find many problems that need the technique and approach that their particular training qualifies them to give. I believe that if psychiatry can be carried out side by side with other fields of medicine, we can do much to foster a new attitude in the medical profession. It is particularly important that this should be done in the early days of a student's career, when he is receiving his first conceptions of what medicine is.

The Accumulation of Clinical Experience*

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To the student approaching the study of clinical medicine, the cumulative store of clinical experience may well appear as a vast heap of tangled fragments. The total sum of human adventure with disease embodies items both of fact and of fiction. With the help of his clinical courses during the next two years, the student is expected to commence arranging and assembling the equipment of a clinical career, to learn to sort out the useful from the obsolete, the true from the unproven and this again from the false. This embodies the dual task of clinical medicine, to make oneself acquainted with the phenomena of human disease, and to trace the derivation of these phenomena back to fundamental facts in physics, chemistry, biology and psychology—a task embodying, it will be seen, a descriptive and an interpretive phase.

There is a great fascination in descriptive medicine. Under the impulse of keen observers it made spectacular forward strides in the glorious times of Hippocrates, Galen and Sydenham. Moreover, in spite of the wealth of effort expended in this direction throughout generations, this field has by no means been exhausted. It has not recognized any political boundaries, and advances made in any one country have had their effect and their applicability throughout the world. New syndromes are constantly being identified as independent clinical entities, and it would be easy to cite a dozen or more, the significance of which has universally been admitted since the time of the World War.

Description of disease came first, since it necessarily emerged from a peremptory insistence on recognition; but it is fair to state that under present day conditions descriptive medicine does not take first place in point of charm. To us, today, it is, perhaps, strange, in studying the history of medicine, to see how far interpretation lagged behind description. Interpretation, in fact, was for a long time purely doctrinal. Even after the revival of learning and the introduction of the experimental method in science, it remained in the rear, failing to keep pace, partly because of the limited acceptance of the experimental method throughout the world of science, and partly because of the elementary stage to which science had been brought. Important contributions were made in the interpretation of clinical phenomena according to established data of chem-

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istry and physics with increasing rapidity as these sciences themselves developed, and in the early part of the Nineteenth Century one can see the balance of emphasis beginning definitely to shift away from description to interpretation along these lines.

A great impetus was added by Virchow through his pursuit of the study of cellular pathology and his establishment of an ideal, or, perhaps, better, a hope, of explaining disease and symptomatology through the accompanying morphologic changes. This spurred on the study of clinical medicine in that it facilitated the segregation and identification of disease pictures along anatomic lines; but, in a sense, it was merely an elaboration of descriptive medicine and was destined eventually to become only one phase of the search for a linkage between symptomatology and etiology. Rapid developments in physics and chemistry, bacteriology and other phases of biology and psychology, during the Nineteenth Century, have brought us now, however, to a point where descriptive medicine alone constitutes a diet strangely lacking in flavor, and we, of necessity, demand the seasoning conveyed by the search for etiology, or, at least, for fundamental mechanisms.

A great impetus was given to the study of mechanisms in disease by Magendie, in France, and by Johannes Mueller, in Germany, and by the schools which they founded. As Magendie expressed it, pathology was the physiology of the sick man. Rapid developments in chemistry and physics along lines of a mechanistic philosophy—during the Nineteenth Century, at the height of its popularity among scientists—gave rise to the hope that the phenomena of health and disease in man might also ultimately be explained along mechanistic lines. We have now reached a position where physics, at least, is withdrawing from the extreme mechanistic position commonly held at the end of the Nineteenth Century, but the time has not come for the abandonment of the mechanistic idea in medicine; in fact, it is fair to suggest that the greatest advances of this century have resulted from a strict application of this attitude toward clinical investigation. Even if it can be shown that the tree of life will not grow in the soil of mechanism, the crop has by no means been one composed entirely of weeds.

Anyone who is familiar with the sick knows that there must be an ultimate breaking down of the mechanistic theory in clinical medicine. Every clinician has seen any number of examples where a patient has felt better even though his disease got worse, or felt badly, both in mind and body, when he had no organic disease at all. Somatic mechanisms are linked up with mental processes through the intermediary connections in the autonomic nervous system and endocrine organs at so many points of contact, and with so many intimate interdependences, that the strict isolation of

either mind or body alone in conscious man is not attainable. In the full appreciation of this situation, however, the task of modern medicine stands out clear, to determine how far and to what extent the phenomena of disease can be traced down to a basis on the fundamental ground of physics and chemistry. The concept of vitalism, which held that biologic phenomena could never be analyzed beyond a certain barrier, has largely been abandoned and thrown out of date by the progressive extension of this barrier outward, as new discoveries and new technics have enlarged the territory of the fundamental sciences in medicine.

There was in times past—and there still lingers to some extent—a tendency to regard the clinician as the exponent, almost exclusively, of descriptive medicine. The man you want when you are ill should be the man who knows how you feel and how to make you feel better; who can make a diagnosis because he has seen many similar cases before, and who can predict the outcome because of his familiarity with you and with your disease. Granted all this—but in present times this is not enough. There is a parallel tendency to hold the view that the person who studies fundamental mechanisms, who is interested in observing all phases of pathologic physiology, and who has taken part in investigations in this field, is by this token excluded from the possibility of being an adequate clinician.

One still hears a lament for the passing of the old-time country doctor who appears so often in works of fiction and in reminiscences of by-gone days. He was a wonderful character, devoted to his duty, sympathetic and helpful in time of need. He always brought cheer and optimism into the sick room. All of these tokens of praise he fully deserved. But it is also said that he it was who always knew what was the matter with the patient. With this last belief we must differ. The point is, he never said he did not know what was the matter with you, and he always gave you something for it, some medicine, that either made you feel better directly or made you feel so much worse while its action lasted, that you could be sure it was doing good, and when its action let up you were naturally relieved.

In those days a certain amount of misfortune and suffering were accepted as man's lot. The Lord hath given, the Lord hath taken away, was an adequate justification of a high infant mortality. But the curiosity of clinical investigators remains unsatisfied by a deistic explanation, and thanks to the popular enthusiasm for science and the belief now so widely held that science can explain everything—a belief, it should be added, more current among journalists than among scientists—the people at large likewise request another explanation. The passing of the country doctor of this ideal type is an inevitable outcome of a critical examination of the

data. Just as the severe winter snows of former days, the passing of which is often remarked upon as part and parcel of the softening and increasing ease of modern life—just as these storms have appropriately been said to exist in the minds of the aged rather than in the records of the weather bureau, so the omniscient country doctor was in some degree a product of wishful thinking, of the human tendency to remember successes and forget failures, and—be it said to his everlasting credit—of the immortal quality of his sympathy.

Today, we sometimes hear the accusation brought against modern medicine that in its zeal for investigation it loses sight of the patient. Where therapeutic nihilism is carried to a far extreme and where only specific treatment is held in respect, it may well seem to the observer from the outside as though the motto furnishing the inspiration of these activities might be paraphrased from the ringing by-word of Charles Pinckney, "Millions for diagnosis but not a cent for treatment."

Is it not the task of the modern clinician to master the skill in observation which characterized those who have brought descriptive medicine to its present state, and to combine with this a curiosity of thought and openness of mind concerning the mechanisms of disease that will be worthy of the opportunities now standing open for filling in the enormous gaps in our knowledge that confront us the moment we inquire more than superficially into their ways?

During my last year as an undergraduate in medical school, I attended a conference on the changes in the bones accompanying rickets, as shown by the x-ray. At that time, the understanding of rickets had reached only an elementary stage in comparison with present-day knowledge of its pathogenesis and pathologic physiology. The discussion represented the kind of attempt at finding out what is actually happening during disease that we look on as being most provocative of a better grasp of the facts. But at the end of the session, when a clinician of the older school was called on for discussion, his comment set off the contrast between purely descriptive medicine and the type of medicine which we are interested in pursuing today. It should be emphasized that he was an excellent clinician, in this limited sense, and an excellent teacher. He offered the caustic remark that any doctor who could not make the diagnosis of rickets without the use of the x-ray ought not to be allowed to practice medicine. That more or less ended the discussion for the day.

At that time, in 1917, the pathology of the bone changes in rickets had been studied fairly fully at autopsy, and it was recognized that the disease might cause, in addition to the gross deformities of the advanced stages, characteristic histologic lesions, and might effect a considerable impoverishment of the inorganic content of bony tissue with respect to its

weight of organic substance. A limited number of studies of bone changes during life, as shown by roentgenogram, had been made—mostly abroad; but the correlation of roentgenogram, histologic picture and the stage of the disease—whether it was advancing or receding—could be attempted in only a vague way at best. The therapeutic value of cod liver oil had been established for some time, but the prophylaxis by dietetic measures was just then in process of investigation on a large scale by Dr. Alfred Hess in a negro community in New York City, and the effectiveness of ultraviolet light in causing active rickets to heal may have been conceived of but had not, up to that time, been established beyond question. In fact, even in those days, great uncertainty existed as to whether rickets should be classed as a deficiency disease, putting the blame squarely on an inadequate diet, or whether other factors played a part in the etiology. Findlay, of Glasgow, still served as the eloquent champion of the importance of exercise in the cure of rickets, and the lack of it in its causation. A linkage of the dietetic factor and the radiation factor through a particular property of ergosterol, a photosensitivity to a particular band of wave-length of light in the ultraviolet spectrum, by which physiologically inert ergosterol could be transformed into the specific antirachitic principle, either inside or outside the body—this brilliant consummation of clinical research was at that time not even dreamed of. Nor could it have been achieved if the curiosity of students of the disease had extended no further than the diagnosis of rickets during life by physical examination.

Now, I would repeat that the physician who made that sardonic remark was at that time and by the standards of descriptive medicine alone an excellent clinician. But since those days, the emphasis has shifted very markedly, and according to criteria imposed on us today by force of circumstances, by the imperative demand of modern medicine for an interpretation based on fundamental mechanisms, he would have to be rated as lacking in one essential phase of a clinical training. I would not imply, of course, that we have progressed so far as to be able to offer a satisfactory physiochemical explanation of all the phenomena encountered at the bedside, nor even of a small fraction of them. But I would take the attitude that we stand ready to encourage the search and to take part in it, when possible.

There are many tools of the trade in descriptive medicine with which the student must early become familiar. He learns, first, the natural history of the common diseases, and the abnormal physical signs by which they are recognized; the probable outcome, and the influence of various therapeutic measures on the course of these diseases. He must add to this basic equipment a comprehension of the relative frequency of the various diseases. In pediatrics, their age incidence is particularly important. He

must learn to apply his senses to the appreciation of physical findings, to educate his eyes, ears, the sense of smell, and, particularly, the sense of touch, and he must learn the relative importance of various physical and laboratory findings.

One of the commonest difficulties which students encounter, in the absence of a specific diagnostic test such as a positive Wassermann reaction or the finding of tubercle bacilli in the sputum or spinal fluid or the result of a histologic examination of a neoplasm, is the art of weighing bits of evidence, none of which is conclusive, and arriving at a correct diagnosis through a process akin to calculation of an algebraic sum or of the resultant of various forces. This involves the evaluation of a set of independent variables, in indeterminate configuration, a mental process with which the mathematician can scarcely be in sympathy. There was a student in the medical school in my time who had included in his premedical studies a Ph.D. degree in mathematics. He excelled in the preclinical course, being trained to study and being equipped with a fine memory and a command of deductive methods of thought, but no one suffered as he did during the introduction to clinical medicine. I may add, too, that the processes by which a clinician frequently attains a correct diagnosis without the aid of a single pathognomonic sign or laboratory test often evoke the wonder—I scarcely dare say arouse the admiration—of one who is trained in the law.

Clinical diagnosis, in the absence of specific tests, does come down, then, mainly to a matter of the estimation of probabilities. Largely, this takes place beneath the level of consciousness; certainly it is not always possible for the keenest clinician to explain his process of reasoning in a sufficiently objective manner for him to teach it immediately to another. I have seen a brilliant clinician attempt to teach medicine by a method of tabulation of relative frequency of occurrence of the various symptoms and signs present. But this technic, while it has much to commend it up to a certain point, eventually breaks down because the physical data cannot be given an equivalent rating in all instances; a systolic murmur, for instance, may have a very different quality and different meaning in one patient from what it has in another, and the physician gets less help from a table of probabilities than from recourse to his own actual experience. This kind of experience, combined with a gift for observation, is at the basis of snap diagnosis, which often seems so brilliant and is generally so shallow.

The anecdotes of astounding diagnostic skill of this sort are legion, but they do not help the student to acquire any deep-founded craft, nor serve any pragmatic purpose, except to impress on him the association of a particular symptom with a particular disease. It may take the student

some time to recover from the ambition of being able to walk past a row of beds and call out the diseases from the evidence he can see peering out over the counterpane.

The preclinical branches have put into the hands of the clinician a host of weapons for use in charting the progress of illness, making an accurate diagnosis and establishing a definite prognosis. It is up to the modern student of clinical medicine to keep abreast of this line of progress and to know the conditions under which this armamentarium may be summoned to his aid. In this respect, we are all students together. The rapidity of development of this feature of modern medicine, so-called laboratory medicine, is so great that a particular bit of information does not take long to become out of date, and a long experience is of relatively little advantage, serving only to assist somewhat in sorting out the useful bits from the mass of reports that appear in current periodicals, in sifting the nuggets from the sand. One sees in this logarithmic increase in laboratory investigation a confirmation of Henry Adams' almost despairing protest against the accelerating rate of interplay of forces in the world's development.

I have said little about therapy so far, and little about prognosis. Students often voice the complaint that they are not taught enough about treatment during their clinical courses. There are good reasons for this policy, though they are not always obvious, nor even welcome. For one thing, therapeutic methods are changing from year to year with bewildering rapidity as new agents are discovered, new mechanisms and new concepts of pathogenesis are disclosed. The details and refinements may well wait for the intern year or years; an earlier emphasis may only be misdirected. It is naturally not pleasing to the student to be told that his medical school work is only a prelude, an introduction to the study of clinical medicine which really commences in hospital life—or at any rate commences when he reaches a stage where he spends the greater part of his days and nights with people who are ill. I can well remember my chagrin —I could almost say my indignation—when I was told, some time during my fourth year, that this was so. But I believe it more firmly now. For another thing, and this is almost a corollary, it is difficult for a student to come into sufficiently intimate contact with patients during his medical course to learn how they feel, what their worries and troubles and pains are—in other words to learn a true sympathy. Some have an innate gift for this, others may have themselves suffered enough illness to know what the patient thinks about, but these generally constitute a minority.

Skill in prognosis comes last, perhaps, in the development of a complete clinical technic. It represents the fully integrated application of the clinician's knowledge of the literature of medicine; his familiarity with

the applicability and significance of laboratory medicine, and above all his experience with sick people. In textbook description of diseases, prognosis is the most difficult aspect of clinical medicine to deal with in an objective manner, and is generally encumbered by so many qualifying clauses and hedged about with such a wealth of "ifs," "in some cases," "but on the other hand," and so on, that a clear deduction can not be drawn for application to the individual case in hand. Even when the prognosis is invariably good, or invariably unfavorable, the same uncertainty is likely to surround the question next in order of importance, the question of time, the probable duration of the illness, or the probable expectation of life.

All of these considerations emphasize the fact that, great as is our debt to the literature of descriptive medicine, it is idle to expect that a clinician worthy of present-day opportunities can evolve from a book-worm; and, on the other hand, mere contact with sickness is not enough. A successful quack sees plenty of sick people, but learns little from the association beyond the therapeutic value of sympathy. The student commencing his clinical studies is in a position, however, to begin building up a store of experiences each one of which has a three-dimensional solidity measured along the direction of descriptive medicine (the place which the illness in question occupies in medical literature), laboratory medicine (embracing the pathologic morphology and physiology involved) and an individual human experience. He cannot afford to underrate the importance to him of this opportunity. Something is to be learned from each contact, no matter how brief, how undramatic or routine it may seem. So-called "typical textbook cases" of any illness are, indeed, the rarest of all; and if we probe deeply enough, we find that they virtually do not exist.

I have for some years kept an album of case reports gleaned from my clinical contacts, in which are entered descriptions of illnesses that deviate in some striking way from ordinary experience in the sense that they fail to conform to familiar patterns or to published descriptions. The uninterrupted and steady growth of this collection of what you might call clinical freaks bears witness to the fluid state of clinical medicine and to the still vast domain of the unexplored. And I would advise the student to commence now, in his undergraduate years, to assemble a collection of records of this kind. It will help him better than any printed text to keep abreast of developments; it will help him visualize the gaps that need filling in in his own stock of clinical information and in medical knowledge in general, and it will furnish a store of concrete experiences from which he can always draw. This is an age in which objective evidence enjoys full evaluation; and the pontifical statement, "such things never occur," will

always fall before the missile of concrete fact, no matter how exalted the Goliath who risks the generalization, no matter how young and unassuming the David who marshals the fact. And one who can say, "I have a record of just such a case," is far better armed than he who "believes he can remember seeing that sort of thing before."

In welcoming students to the study of clinical medicine, I would point out, finally, this supreme advantage which they hold over those of us who have been at the game a little longer—an advantage that exposes them to particular felicitation—that they are making a fresh start in a field which is constantly changing, constantly growing, and in which one is called on at every step to take account of stock and to bring one's ideas in line with new evidence—in short, that it is far easier to learn the new than to unlearn the old.

Incidence of Tuberculosis in Medical Students*

F. MAURICE MCPHEDRAN
Henry Phipps Institute of the University of Pennsylvania
Philadelphia

A study was made in 1929-1930 to determine the incidence of tuberculous infection and of tuberculous lesions in students during the four years of a medical course. As has been reported[1], 452 medical students of the University of Pennsylvania were given a roentgen-ray examination, and in most instances the tuberculin test and the results were compared with the results of similar examinations of 279 students taking a four year premedical college course, and with those obtained with high school boys in a former survey[2]. During 1930-1931 and 1931-1932 this study has been continued with reexaminations of the medical students in each year, including the incoming classes. The results obtained will be reported in detail. They are substantially the same as in the earlier study[1].

It was shown that tuberculous infection revealed by the tuberculin test, which occurred in 77.8 per cent of school boys, mostly between the ages of 15 and 18 years, and in 85.6 percent of premedical college students, from 16 to 21 years of age, occurred in 93.6 per cent of the medical students, who ranged in age from 21 to 26 years. Among the premedical students there was no continuous increase in incidence from class to class, variations in percentages probably being due largely to the small and variable numbers of men examined. On the other hand, among the first year medical students, 84.8 per cent reacted to 1 mg. of tuberculin or less, but in the second and third year the percentage was progressively higher, and in the fourth year reached 98.2 per cent. Retesting of the medical students who in 1929 were in their first, second and third years, and of the incoming class that reached its second year, has shown a similar high incidence of tuberculous infection, and similar increases from year to year.

Recognizable calcifications of pulmonary nodules and lymph nodes, which are not of direct clinical significance, were not observed more frequently in the medical students than in the school boys and the college students. The incidence of apical lesions, however, which were found somewhat more frequently in premedical and in first-year medical students than in high school boys, increased rapidly from year to year during the medical course. There was a corresponding increase in the severity of

*Read at the Forty-third Annual Meeting of the Association of American Medical Colleges, held in Philadelphia, Nov. 14-16, 1932.

1. Hetherington, H. W., McPhedran, F. M., Landis, H. R. M., and Opie, E. L.: Arch. Int. Med., 1931, 48, 734.
2. Hetherington, H. W., McPhedran, F. M., Landis, H. R. M., and Opie, E. L.: Am. Rev. Tuberc., 1929, 20, 421.

latent lesions, the incidence of advanced latent apical lesions being highest in the fourth year of medical school, and pulmonary tuberculosis manifested clinically by symptoms and physical signs also occurred with increased frequency. In the earlier study, apical lesions were shown by roentgen-ray in 4.1 per cent of medical students in the first year, in 11.6 per cent in the second year, in 14 per cent in the third year, and in 20.5 per cent in the fourth year.

Interest attaches to follow-up examinations of men who had serious lesions on graduation in 1930 and 1931. Those who remained in or near Philadelphia were requested to return to the Henry Phipps Institute for subsequent examinations. Those who lived at greater distances were asked to have roentgen organs sent in for comparison with our records. The interest of these graduates has apparently been considerable, and films have been sent to us from all parts of the United States. The men have been notified of the changes shown in these serial roentgenograms, and have been advised as to the desirability of using their leisure hours for rest.

In the class of 1930, two men showed marked increase of tuberculous lesions, and were advised to abandon their internship. Both have shown decided improvement. Another man's lesion showed conspicuous and rapid spread but retrogressed when he increased his hours of rest without giving up his internship. In a fourth case, a dangerous spread has occurred. This man has not so far submitted to rest. A brother died of pulmonary tuberculosis.

Of those previously reported from the class of 1931, two men developed clinical tuberculosis shortly after graduation. Both had been warned of the serious danger of their spreading lesions some months before symptoms developed. At the onset of symptoms they sought sanatorium care.

DISCUSSION

Dr. Torald Sollmann (Western Reserve University): We now require each student to furnish a roentgenogram of his chest as part of the entrance requirement.

Dr. Edson Heck (Columbia University): I want to make a brief report on our experiences at the College of Physicians and Surgeons, Columbia University.

Dr. McPhedran's work has interested me very much, from two angles: from the results, which speak for themselves; and also in the method of detecting tuberculosis.

Tuberculosis is notoriously a difficult disease to diagnose early, and it is only by some comparable technique that we will ever pick up a large number of cases of tuberculosis among our students; in other words, an annual routine physical examination will pick out only a very few students.

It happens that for the past eight years I have had sole charge of the examining of the students at the College of Physicians and Surgeons, and during this

time I have gathered records on 1,291 students. This makes up a group of eleven classes, from 1925 to 1935 inclusive. With us the roentgen-ray has not been used routinely. It has been an accessory rather than an integral part of the examination, and it has been used only when tuberculosis has been suspected.

Bearing this in mind, we have to consider two types of cases: (1) those that have developed tuberculosis as students; (2) and those who have developed tuberculosis afterward. On the former group our records are complete. On the second group, they are incomplete.

During this period of eight years we have had eight students who have been diagnosed as being tuberculous. Two of these cases have been definitely inactive and have shown only roentgen-ray evidence of the disease. Both men were able to graduate, and, as far as I know, are in good condition at the present time.

The other six student cases had definite clinical tuberculosis. Among the recent graduates I have data on six additional cases.

I was interested in whether there was any particular distribution of cases. In the experience of other schools it would seem that each school would have a bad year. For instance, at the University of Pennsylvania, 1930 seemed to be the bad year, when they had nine cases in the senior year. In our group, however, the cases have been well distributed; in fact, among the students who developed the disease in school no class has had more than two cases; six of the classes each had one; if we include the six who reported tuberculosis after graduating, 1926 leads with four cases. No other class has had more than three.

Distribution by college years is as follows for the eight students who developed the disease in college: none in the first year, three in the second year, three in the third year, and two in the fourth year.

It was very interesting to me in going over these records to see what we might have learned by a little more careful study of the students before they developed the disease, and I looked at the examinations to see whether there was anything in the physical signs. None of the cases had physical signs in the chest at the date of last examination. There were, however, four students who were underweight, that is, less than minus 10 per cent underweight; two were overweight; and eight were normal.

As far as the family histories were concerned, two of the fourteen had had tuberculosis in their immediate family. In one case the boy's parents had both died of tuberculosis. Two of the fourteen had a history of pleurisy, neither with effusion. As far as past diseases were concerned, the only one that seems to have occurred with any great regularity was sinus trouble, present in seven of the fourteen cases. We find a great deal of sinus trouble in our students, so this is probably not of any great significance.

I wanted also to find out how many of these burst on us accidentally, and how many we actually picked up, and I find that of the eight that occurred in school, three were diagnosed as a result of the routine examination, not on physical signs, but simply on suspicion because the man was run down and, perhaps, underweight. Diagnoses in these three cases were really made by roentgen-ray. In the other cases the disease manifested itself very suddenly, twice by pulmonary hemorrhage, twice by acute febrile attacks, and one case, unknown.

As to the subsequent course of the eight students that developed tuberculosis

in school, we find that in three the course was uninterrupted. They took the summer off, loafed around, gained weight, and came back and had no interruption whatsoever. One man lost a year but graduated the following year. He later died, and he was the only one of the group that did die.

Three students left school. One of these is on leave of absence now, and we hope he will be back next year. Another man left school but returned, and is still in school at the present time. So, out of the eight, four graduated, and we have hopes that two of the other four may graduate.

A phase of Dr. McPhedran's presentation that interested me was the fact that the number of tuberculin reactors jumped so tremendously from the first to the second year, and I was curious to know why this occurred at that point because at that time there certainly is not much exposure of the students to tuberculosis except, possibly, through pathologic material which they are handling.

Another thing I should like to ask is: In these fresh cases that have developed, is there any evidence that any of them are primary infections? In other words, have any of these cases developed in students who had negative tuberculin tests on admission?

In none of the papers I have come across in regard to tuberculosis have I seen any reference to studies made by Heimbeck in Oslo several years ago. He took a group of students about to enter the hospital, 183 students, and he found 88 who had positive tuberculin tests. Only one developed tuberculosis in the hospital. However, of the 51 with negative tests, 6 developed tuberculosis in the hospital. There was another group of 44 negatives whom he vaccinated with B.C.G. and none developed tuberculosis in the hospital.

I think that study is interesting as seeming to indicate that most of the lesions were fresh infections in formerly tuberculin negative students.

It would be very interesting if all the medical colleges could make similar studies. I do think that the roentgen-ray is a very necessary adjunct to the diagnostic armamentarium, and in our own school we are using it for the first time this year. Many of our students have roentgenograms taken. Part of the course in tuberculosis in the fourth year embraces that. Bellevue Hospital takes roentgenograms, but accurate records have not been kept of these plates. In talking informally with the man who makes these, I was told that the rate of significant lesions was quite low. In the last three years, he has examined possibly three hundred students, and he told me that only two of them had lesions of any account. Tuberculin tests are made on the second year students as part of the course in bacteriology. Unfortunately, no record has been kept of any of them. We hope this year to get some of these things together, get them under one head so we can in future correlate our findings better.

DR. MCPHEDRAN: Answering the points Dr. Heck raised, I do not think that the jump in the tuberculin reaction was marked. It was 84 to 92 in one year, 88 to 94, and 88 to 91. I think those figures will level out for a period of years.

The students in the high schools do the same thing. You get from one year to another quite a jump of 5 or 10 per cent, but it will level out over a period of years.

The majority of these students with acute tubercular onsets show a lesion for at least six months before they develop acute symptoms and that is exactly the point of the special technique to pick up the apical lesions. I do not wish to insist

on that except that it is so important from the point of view of picking out the men who are likely to have rapid spreads and see if we can modify their lives and prevent the rapid spread six months or four months before the man is conscious of it and the symptoms may come on with what is apparently an acute respiratory condition. In some cases I think so, and in other cases it is not clear, but the interesting thing is that with a good many of these symptoms of acute respiratory infection die off within seven or eight days, as they do not with purely tubercular spreads.

There, again, it all comes back to the question of what lesions are radiographically significant, and that is a matter for investigation. There is no doubt that these lesions above the clavicle indicate infections, and where you have an infection severe enough to implant in the lung, the probability of its spreading and favoring the development of another infection is at least to be considered.

We have not had evidence of primary infection. The only man who looked like a case of primary infection developed pleurisy with effusion. The number of those who develop apical lesions four years hence is quite high, 60 to 70 per cent, depending on what experience is taken, whether sanatorium or hospital.

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State Board Statistics

The *Journal of the American Medical Association*, April 22, 1933, presents the annual survey of the results of state board examinations for 1932 made by the Council on Medical Education and Hospitals of the American Medical Association.

The report is an extremely interesting one and contains much information and matter for thoughtful study. However, here mention will be made only of that part of the report in which medical schools are especially and primarily interested.

Owing to the lack of specific data on the number of individuals taking licensing examinations, the figures given must be interpreted on the basis of examinations rather than examinees. It is known that one individual frequently takes more than one examination and fails in all. The count for such a case is one of examinations, hence the failures count as so many failures and not as failures made by one individual.

On this basis, of 5,624 examinations, 433, or 7.7 per cent, resulted in a failure to pass. This is 1.1 per cent more than in 1931. For the 65 approved medical schools in the United States, 4,681 examinations resulted in 186 failures, or 3.7 per cent. The 9 Canadian medical schools are charged with 141 examinations and 18 failures, or 12.7 per cent. Foreign graduates took 181 examinations with 86 failures, or 47.5 per cent.

Of the 65 approved medical schools in the United States, 17 (charged with 1,035 examinations, or 22.1 per cent of all examinations) show no failures. Three schools, with 118, 139 and 150 examinations, respectively, each had one failure, or less than 1.0 per cent; 7 schools had between 1 and 2 per cent failures; 6 between 2 and 3 per cent; 8 between 3 and 4 per cent; 1 school had 4.1 per cent failures. Thus, 25 schools had between 1 and 5 per cent failures. Fourteen schools had between 5 and 9 per cent failures, and 9 schools had more than 10 per cent failures. The highest percentage of failures was 18.4 per cent (136 examinations with 25 failures); one had 16.1 per cent failures (56 examinations with 9 failures) and one had 15.4 per cent failures (52 examinations with 8 failures). The remaining 6 schools had between 10 and 12.7 per cent failures.

Of the 9 Canadian schools, 3 had no failures; 2 had 50 per cent failures; one, 33.3 per cent; one, 23.5 per cent; one, 11.1 per cent and one 7.5 per cent.

It would be interesting to know what would be the results of licensing examinations if all candidates were given the same examination instead of the many different examinations by the various state licensing boards. Would the percentage of failures be less or greater?

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American Students in European Universities

According to figures published in the News Bulletin of the Institute of International Education, May, 1933, 2,315 Americans are enrolled in the universities of Austria, Czechoslovakia, France, Great Britain, Italy and Spain. France leads with 896 and Great Britain is a close second with 705. How many of these students are enrolled in medical courses is not stated, except in the case

of Austria where 226 out of a total enrollment of 284 are medical students.

The three universities of Austria henceforth will not accept any American applicant for medical courses unless he is the holder of a bachelor's degree and can furnish evidence that he has been accepted by an American medical school. Doubtless, the number of such students studying medicine in Austria from now on will not be anywhere near as large as it is at the present. Correspondence with Austrian medical schools has disclosed the fact that they are not at all inclined to accept American students who are not acceptable over here.

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Medical Education in Europe

In a letter addressed to the managing editor of the *New England Journal of Medicine*, Dr. Francis G. Benedict, director of the Nutrition Laboratory of the Carnegie Institution, relates his experience with the American students studying medicine in Europe, of whom he saw a great many. Germany and Austria lead in the numbers of such students. German professors reported that almost invariably they are of a quality below what they had been accustomed to see in American medical students and were, on the whole, not a particularly satisfactory group.

It has been stated repeatedly that German universities welcome these students because of financial reasons. Dr. Benedict points out that, as a matter of fact, each American student in a German university costs the government nearly 800 marks per semester over and above what the student pays, which is only about 200 marks. And, despite the fact that many of them are undesirable students, it is not possible to dispose of them until they have been at the university for nearly a year and a half, when they take their first examination. Only if they fail in that examination can they be dropped. Hence the situation is not economically advantageous to the universities.

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Medical Schools and National Board Examinations

A number of medical schools have adopted the examinations of the National Board of Medical Examiners in lieu of their own semifinals and finals.

Yale University School of Medicine requires that all its students take the National Board examinations, provided that they passed the Yale comprehensive examination held at the end of the second and fourth years, respectively. The Board grades the papers.

Duke University School of Medicine requires all its students to take the Board examinations, but grades the papers for its own purposes before they are forwarded to the Board.

The College of Medical Evangelists uses the Board examination in lieu of its own finals, but does its own grading. The plan has been followed for several years.

The University of Minnesota Medical School allows its students to take either the Board examinations or its own comprehensive examination. It, too, does its own grading.

Georgetown University School of Medicine will after this year require its senior students to take the Board examination in lieu of its customary finals.

The plan is said to be under consideration by the medical schols of the universities of Iowa, Illinois, Columbia, Colorado, Buffalo and Washington (St. Louis).

College News

University of Colorado School of Medicine

Charles N. Meader, dean emeritus and professor of medicine, and head of the Department of Medicine, resigned from this position on July 1, 1933. Dr. Meader has been with the School of Medicine since 1912. In 1914 he was appointed instructor; in 1916 dean and professor of medicine; in 1925 he resigned as dean and was given the rank of dean emeritus. It was through Dr. Meader's efforts that the new medical school buildings in Denver, Colorado, were erected, and he has been one of the foremost champions of medical education in Colorado.

James J. Waring has been appointed professor and head of the department of medicine, to fill Dr. Meader's place.

Roy Parsons Forbes and Emanuel Friedman have been appointed assistant professor of pediatrics. Roderick J. McDonald and Wilford W. Barber have been appointed instructor in pediatrics.

Dr. Carbon Gillaspie, associate professor of anatomy, died at his home in Boulder, Colorado, on May 5, 1933. Dr. Gillaspie was connected with the School of Medicine for many years. At the time of its reorganization in 1911, he was appointed professor of anatomy. In 1919 he took the rank of associate professor.

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Duke University School of Medicine

April 8, Dr. Charles R. Stockard, professor of anatomy, Cornell University, gave a lecture at the Duke Hospital on the "Peculiar Form and Type in Man and Animals."

May 3, Dr. Otto H. F. Vollbeahr, well known bibliophile, lectured on old and rare books.

May 15, Dr. Arthur Steindler, professor of orthopedics, University of Iowa, gave a clinic on "The Low Back."

June 1, Dr. George P. Muller, professor of clinical surgery, at the University of Pennsylvania, Philadelphia, gave a clinic at the Duke Hospital on the practice of surgery.

At the graduating exercises held June 7, fifteen medical students received the degree of Doctor of Medicine and four received the degree of Bachelor of Science in Medicine.

June 10 the spring quarter of the medical school ended and the summer quarter commenced June 19, with fifty students registered at Duke, for credit here, and three studying at other medical schools in this country, for which they will be given credit at this medical school. Several of the senior students, who are in their twelfth, or elective, quarter, will intern at various hospitals.

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Stanford University Medical School

Loren Roscoe Chandler, assistant clinical professor of surgery, has been appointed dean of the school succeeding the late William Ophuls.

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Tulane University School of Medicine

Ernest Carroll Faust, professor of parasitology in the department of tropical medicine in the School of Medicine, has gone on a research expedition to Puerto Rico. The main purpose of this expedition is the study of Schistosomiasis mansoni in Puerto Rico.

Funds for the expedition have been provided jointly by the National Research Council and the School of Tropical Medicine in San Juan, Puerto Rico, under the auspices of Columbia University.

The work will be undertaken jointly by Dr. Faust, from Tulane, and members of the staff of the School of Tropical Medicine of San Juan. Charles Jones, a junior medical student at Tulane went with Dr. Faust as an assistant. They will be away about three months.

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University of Texas Medical Branch

The school recently erected an outdoor gymnasium containing three handball courts, benches for spectators and other necessary conveniences. Several new tennis courts are also under construction.

Dr. Allen K. Krause, director of the Tuberculosis Research Institute at Tucson, Arizona, recently addressed the junior and senior students on the Diagnosis of Incipient Tuberculosis.

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George Washington University School of Medicine

Edward Bright Veeder has been appointed professor of experimental medicine and executive officer of the department of pathology and experimental medicine.

Five full time instructors have been added to the department of anatomy, biochemistry and pathology.

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University of Mississippi School of Medicine

The state legislature will determine shortly whether this school will be continued. A concerted effort is being made to secure an emergency appropriation to carry on. The Board of Trustees and the Governor are among those favoring continuance of the school. The Peabody investigating committee recommended that the school be not closed. Physicians of the state and their various medical organizations favor its maintenance. The appropriation asked for amounts to $75,000. A complete reorganization of the faculty is proposed and steps are to be taken either to reconstruct the medical building or to move the medical school into one wing of the newly built hospital which has not yet been opened for service.

The Board of Trustees approved an annual budget of about $30,000 for the medical school to be used only for salaries and maintenances.

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College of Medical Evangelists

A student-faculty association has been formed for the purpose of securing better understanding and greater cooperation between faculty, undergraduates and graduates by stimulating greater interest in the scientific and intellectual phases of medicine and propagation of the fundamentals of ethical conduct, and for the maintenance of a higher degree of physical fitness among the college personnel.

Two tennis courts, basketball and volley ball courts are being constructed as a part of this plan. The money for the project was donated by students, graduates, faculty and the Board of the college. The greater part of the labor was donated by the students.

The college has the honor of having four of its students among the ten honor students taking the recently held Part I examination of the National Board of Medical Examiners.

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Georgetown University School of Medicine

Dr. Owen Stanley Gibbs, erstwhile professor of pharmacology and physiology in the University of Georgia Medical Department, has been appointed professor of physiology.

Dr. Wilbur F. Potter, assistant profes-

sor of physiology in the Georgia School, has been appointed to a similar position at Georgetown.

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New York University

It is reported that a department of legal medicine has been organized. In this department men will be trained as medical examiners and toxicologists so that communities needing such experts will select them in a manner somewhat similar to that in which they now select health officers.

Dr. Charles Norris, chief medical examiner of New York City, will head the department.

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Western Reserve University School of Medicine

Dr. George Burrill Ray resigned as assistant professor of physiology to become a member of the faculty of the Long Island College of Medicine as professor of physiology and pharmacology. He will leave Cleveland at the end of the academic year.

Receiving his Ph.D. from Harvard University in 1922, Dr. Ray was instructor in the School of Health in Harvard two years and came to Western Reserve University nine years ago. Besides teaching he has conducted research upon the blood at Western Reserve, and for the year 1930 he continued this work at Cambridge University in England on leave from Western Reserve University.

Two prizes were awarded to Frederick Robert Mautz, senior, who receives his M. D. at commencement, June 14. He was graduated from Case School of Applied Science in 1929.

He will receive the senior prize in obstetrics, gift of Dr. Edwin M. Garvin, graduate of the School of Medicine in 1894, income of a fund, given annually, to the member of the fourth year class who shows best knowledge, theoretical and practical, of the subject of obstetrics.

Mautz also gets the senior prize in surgery, annual gift of Dr. Elliott C. Cutler, formerly professor of surgery, consisting of the papers of the late Professor William Steward Halsted of Johns Hopkins University, and conferred upon the student in the graduating class who has shown best knowledge and greatest ability in surgery during his undergraduate course.

The Steuer Prize in anatomy was awarded to William B. Seymour, Jr., a sophomore. He did a volunteer study, last summer, of bone scars revealed by the X-ray in the limb bones of children, caused by piling up of lime when illness, dietary disturbance or shock temporarily stops growth. By examining 3,700 such records Seymour was able to chart the growth of the limb bones from infancy till completion of growth at about 18. By his chart it is possible to tell, often to a month, at what time a child's growth temporarily stopped. His study also establishes that growth of the limbs reaches maximum at the age of 14. Growth during adolescence occurs mostly in the trunk—why the 14-year-old seems all arms and legs.

The Steuer Award is a memorial to the late Dr. Herbert Steuer, graduate of Harvard College in 1917 and of the School of Medicine of Western Reserve University in 1921, whose tragic death in the midst of a study of growth and repair occurred June 6, 1928.

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Medical College of Virginia

Dr. William deBerniere MacNider, Kenan Professor of Pharmacology, University of North Carolina Medical School, was awarded the honorary degree of doctor of science during the commencement exercises closing the ninety-fifth session of the college May 30.

Dr. Julian A. Burruss, President, Virginia Polytechnic Institute, was the commencement speaker at the final exercises. The combined graduating classes in med-

icine, dentistry, pharmacy and nursing numbered 164.

During commencement week, portraits of Dr. Lewis Webb Chamberlayne, first professor of materia medica and therapeutics, and Dr. Richard L. Bohannan, first professor of obstetrics and diseases of women and children, were unveiled. These portraits were gifts of the descendants of Dr. Chamberlayne and Dr. Bohannan. They occupy an interesting place in the Founders' Room of the new college library building.

Dr. Arthur D. Wright, President of the John F. Slater Fund, Washington, D. C., delivered the address at the tenth commencement of the Saint Philip Hospital school of nursing, which is under the Medical College of Virginia, Richmond. This school is maintained separately for the education of Negro nurses. There were twenty-one graduates in the class this year.

Twenty-nine Negro physicians attended the third Saint Philip Hospital postgraduate clinic conducted by the Medical College of Virginia, Richmond, from June 19 to July 1. The clinic had been limited to twenty-four matriculates but was enlarged to meet last minute demands for attendance. There were doctors present from North Carolina and Florida in addition to Virginia.

Doctor Walter Straub, professor of pharmacology of the University of Munich, was a recent guest of Dr. Harvey B. Haag, associate professor of pharmacology. Dr. Haag worked in the laboratory of Dr. Straub in Munich several years ago.

Promotions: Wyndham B. Blanton, to professor of medicine; William R. Bond, to professor of physiology and associate professor of pharmacology; Robert H. Courtney, to associate professor of ophthalmology; Harvey B. Haag, professor of pharmacology and associate professor of physiology; Daniel D. Talley, Jr., to professor of roentgenology, succeeding the late Alfred L. Gray.

University of Missouri School of Medicine

Dr. Edgar Allen, dean and professor of anatomy, has resigned. He will leave at the end of the current scholastic year to join the faculty of Yale University School of Medicine.

Dr. Allen's successor in the deanship will be Dudley S. Conley, professor of surgery.

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University of Georgia Department of Medicine

At a meeting of the Regents of the University System of Georgia held May 15, it was decided to continue the Department of Medicine. It had been rumored that the school would be closed at the end of the present academic year.

Mr. Snelling, for many years chancellor of the university, has resigned. He will be succeeded by Mr. Weltner.

Dr. Owen Stanley Gibbs, professor of physiology and pharmacology, resigned to accept the position of professor and head of the department of physiology in Georgetown University School of Medicine. Dr. Wilbur F. Potter, assistant professor of physiology, also resigned to accept the same position at Georgetown.

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University of California Medical School

At the commencement held in the Greek Theatre on the Berkeley Campus May 13, the degree of Doctor of Medicine was awarded to 51 men and 3 women. All but 2 of the number were residents of the state of California.

A series of radio broadcasts on diet and health is being given by members of the faculty over KPO, KECA and KFSD. Emphasis is placed on diet in its relation to the health of persons young and old, well and sick. Subjects discussed include: vitamin and mineral needs; how is diet to meet the child's prenatal growth needs?; the young in-

fant; the runabout child; the school child; the youth; the adult, and preparing and serving an adequate diet.

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Jefferson Medical College

The 108th annual commencement was held June 2 in the American Academy of Music. The valedictory address was delivered by Clarence A. Barbour, president of Brown University. The title of his address was "The Search for Truth."

The class of 1933 presented a portrait of the late Elmer H. Funk, professor of therapeutics, to the college.

John Chalmers da Costa, for nearly fifty years a member of the faculty and since 1901 Samuel D. Gross professor of surgery, died, aged 70.

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Columbia University
New York Postgraduate
Medical School

An intensive four weeks' course in tuberculosis for physicians, beginning Monday, August 28, 1933, under the direction of Dr. George G. Ornstein, has been planned with the idea of presenting the problem of pulmonary tuberculosis in its many phases, in a simple and logical manner. The hours have been so arranged that the laboratory and relatively few didactic hours are immediately followed by and are intimately connected with clinical sessions illustrating the various points involved. Throughout the course emphasis has been placed on actual case study. The matriculate will do most of the work himself on the hospital ward. Over 2,000 tuberculosis beds are available at Metropolitan and at Sea View Hospitals.

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University of Cincinnati
College of Medicine

"Home Coming Day" was celebrated June 10. The annual meeting and banquet of the Alumni Association were held June 9. The address of the occasion was delivered by the president of the university, Dr. Raymond Walters. The 72 members of the graduating class were inducted into membership in the association.

A new chair has been established in the college to be known as the Edward Wendland Professorship of Materia Medica and Therapeutics. Dr. Dennis E. Jackson, professor of pharmacology, was elected to fill the chair and to retain his present title. The bequest of $165,000 comes through the will of Dr. Edward Wendland, class of 1886, for years a devoted student of pharmacology.

After receiving the degree of Bachelor of Medicine the members of the graduating class will take intern service in hospitals approved by the Council on Education and Hospitals of the American Medical Association. In addition, the fifth-year faculty committee carefully supervises the selection in each case in order that the student may go on duty in one of the better hospitals of the approved list. Cognizance in connection with the applicant's individual aptitude along certain lines of study is also an important factor considered.

Throughout the internship year monthly reports are filed by the authorities of the institutions where service is being taken addressed to the fifth year committee, and only upon final report of satisfactory work duly approved in the office of the dean will the intern be recommended for the degree of Doctor of Medicine.

The system in vogue in these last eight years has been most effective in making for an added educational advantage for the student. He is stimulated in his hospital work, as he is forced to carry on scholastically in accordance with the traditions of the college and give effective and satisfactory service to the hospital with which he is affiliated, else he may not receive the medical degree.

FACULTY CHANGES: Promotions—Emerson A. North, professor of psychiatry and

head of the department; Maurice Levine, assistant professor of psychiatry; Gustav Eckstein, Jr., assistant professor of physiology; Frank H. Miketta, associate professor of obstetrics; Daniel J. Davies and Robert L. Crudgington, assistant professors of obstetrics; Helena R. Ratterman, assistant clinical professor of obstetrics; Frank M. Coppock, professor and head of the department of gynecology.

Dr. Samuel Iglauer of the department of otolaryngology, and Mr. Joseph Homan of the medical arts department, have prepared a motion picture illustrating bronchoscopy and esophagoscopy on the cadaver and on the living.

The government of France has bestowed upon Dr. Carl R. Hiller, of the department of surgery, the decoration of Officier d'Academie in recognition of his professional services rendered it over a period of years.

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University of Alabama School of Medicine

Dr. E. W. Goodpasture, professor of pathology, Vanderbilt University School of Medicine, gave the annual address of the LaFayette Guild chapter of the Gorgas Medical Society, University of Alabama, on April 28. The subject of his address was "A Medical Pageant." Doctor Goodpasture was made an Honorary Fellow of the Gorgas Medical Society.

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Woman's Medical College of Pennsylvania

Dr. Mae Lichtenwalner-Myers, a graduate of the Woman's Medical College of Pennsylvania, Class of 1905, and professor of histology and embryology at her Alma Mater, died of coronary embolism April 28, after an acute illness of three weeks. Dr. Myers became a member of the teaching staff of the college as assistant in histology in 1908, and therefore was completing her twenty-fifth year of service. She was promoted to the professorship in 1931. The vacancy has not yet been filled.

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University of Virginia Department of Medicine

The William Webster Root Memorial Alpha Omega Alpha Lecture was delivered on the occasion of the annual initiation of new members on April 14 by Dr. A. N. Richards, professor of pharmacology at the University of Pennsylvania. The subject of the lecture was "Microchemical Study of Renal Function."

April 14, Dr. Edwin P. Lehman read a paper on "Sympathetic Syndromes of the Extremities," before the meeting of the Ohio County Medical Society in Wheeling, West Virginia.

Dr. Ronald T. Grant, of the department of clinical research, University College Hospital Medical School, London, visited the Medical School April 22 and 23.

May 1, Major Edgar Erskine Hume, librarian of the Surgeon General's Library, Washington, spoke before the University Medical Society on the "History of Typhus Fever" with particular reference to the Serbian epidemic.

The eleventh postgraduate clinic was held at the University of Virginia Hospital May 4 and 5. Fifty physicians were in attendance.

May 1, Dean J. C. Flippin spoke before the Lynchburg Medical Society on the subject of "Hyperinsulinism and Allied Conditions."

May 3, Dr. Henry B. Mulholland and Dr. William W. Waddell attended the meeting of the Augusta County Medical Society at Staunton. Dr. Mulholland addressed the society on "Treatment of Heart Disease" and Dr. Waddell spoke on "Diarrhea in Children."

May 15, Dr. J. Edwin Wood spoke before the Rockingham County Medical Society on "Digitalis."

May 29, Dr. Lawrence T. Royster at-

tended the meeting of the Norfolk County Medical Society in Norfolk and spoke on "Rheumatism and the Rheumatic Heart in Children."

At the meeting of the University of Virginia Medical Society, May 22, reports were given on various papers on the program of the recent sessions of the American Clinical Congress in Washington, by Doctors Lehman, Morton, Drash, Neff, Wood, Swineford, Wilson and Royster.

May 26, Dr. Howard A. Kelly, of the Johns Hopkins Medical School, gave a lecture before the faculty and students on "Some Personal Relationships with the History of Medicine Within the Past Century."

Mr. Paul Goodloe McIntire, of Charlottesville, Virginia, has given $75,000.00 to the Medical School for the study and treatment of mental diseases and $100,000.00, as a memorial to his wife, Anna Rhodes McIntire, for the study and treatment of cancer.

At the meeting of the American Medical Association held in Milwaukee, June 12-16, Dr. H. B. Mulholland presented a paper on "Pellagra, with Special Reference to Gastric Analysis;" Dr. Oscar Swineford read a paper on "Studies of the Anaphylactic Antibody;" and Drs. D. C. Smith and W. A. Brumfield gave an exhibit on the "Epidemiology of Syphilis."

Dr. J. Edwin Wood read a paper on "Rheumatic Fever in Virginia" (prepared in collaboration with Dr. A. D. Hart) before the American Climatological and Clinical Society at the meeting in Washington May 10.

May 12, Dr. Arthur Steindler, professor of orthopedic surgery at the University of Iowa, gave two lectures before the faculty and students. One on "The Upper Extremities," the second on "Back Pain."

Long Island College of Medicine

Dr. George B. Ray, associate professor of physiology in the School of Medicine of Western Reserve University, has been appointed professor of physiology and pharmacology to succeed Dr. John C. Cardwell, who retired in June, 1932.

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Johns Hopkins University School of Medicine

Philip Bard, Ph. D., assistant professor of physiology, Harvard University Medical School, has been appointed professor of physiology, effective September 1.

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University of Chicago Division of Biological Sciences

Beginning with the autumn quarter, 1933, medical students will be admitted only once a year instead of at the beginning of each quarter.

A further bequest of $100,000 has been received to be used for the treatment of crippled children. This is a further contribution to the $300,000 received in 1927 for the construction of the Gertrude Dunn Hicks Memorial Hospital for Crippled Children.

Dr. Ernest E. Irons, dean Rush Medical College, has been appointed chairman of the department of medicine to succeed Dr. George F. Dick who accepted the same position in the Division of Biological Sciences.

William H. Talliaferro, associate dean of the Division of Biological Sciences, has been appointed chairman of the department of hygiene and bacteriology to succeed Dr. Edwin O. Jordan, who retires October 1.

Robert R. Bensley retired as head of the department of anatomy. Charles Judson Herrick, professor of neurology, has been appointed his successor.

Personals

William Snow Miller, emeritus professor of anatomy in the University of Wisconsin Medical School, was guest of honor at a dinner given by Phi Beta Pi, on the occasion of his seventy-fifth birthday.

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Earle B. McKinley, dean of George Washington University School of Medicine, is one of seven scientists who will go to the new Leonard Wood Memorial for the Eradication of Leprosy located on Culion Island, Philippines, to do research work on the prevention and treatment of leprosy.

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Dr. Earl D. Bond, professor of psychiatry in the University of Pennsylvania, was given the Philadelphia Award for 1932, Philadelphia's highest civic honor. The award was founded by the late Edward W. Bok in 1921. It consists of a scroll, a check for $10,000 and a gold medal. The award was made because of the service Dr. Bond rendered in the field of psychiatry. He has announced that the cash bonus will be used as a fund for the free treatment of mental patients at the Institute for Mental Hygiene of the Pennsylvania Hospital.

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Dr. Edwin O. Jordan, chairman of the department of hygiene and bacteriology in the University of Chicago, will retire October 1, after forty-one years of service in the university.

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August G. Pohlmann, dean and professor of anatomy in the School of Medicine of the University of South Dakota, has resigned. He has been appointed professor and head of the department of anatomy in Creighton University School of Medicine.

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Francis G. Blake, professor of medicine in Yale University School of Medicine, has been appointed chairman of the Division of Medical Sciences of the National Research Council.

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Clarence E. McClung, professor of zoology in the University of Pennsylvania, at one time dean of the School of Medicine of the University of Kansas, leaves shortly to spend one year in Keio University, Japan, as exchange professor.

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Felix d'Herelle has resigned as professor of bacteriology in Yale University School of Medicine.

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Isidore Cohn was recently appointed head of the department of surgery in the Graduate School of Medicine of Tulane University of Louisiana. He succeeds the late Alfred C. King.

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Frederick G. Novy, for 47 years a member of the faculty of the Medical School of the University of Michigan, was the guest of honor at a dinner given by the Genesee County Medical Society. He has been professor of bacteriology since 1902.

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Dr. Charles F. Martin, dean McGill University, delivered the William W. Root Alpha Omega Alpha lecture at the annual dinner given in Milwaukee, June 15.

General News

Accomplishments of Medical Education

Twenty-five years ago, no one could have imagined the possibility of securing for any university division that served only a few students such stupendous sums as are now invested in medical teaching plants. Just as incredible would have seemed the staggering maintenance charges, which make the current per capita costs of medical education so high. The establishment of schools of medicine on this plane has been a challenge to every other professional interest. As fast as possible the outlays for equipment, teaching and research in several other lines of professional education have been forced up in order that these undertakings may not suffer by comparison with medical education.—S. P. CAPEN, *J.A.M.A.*, April 22, 1933.

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Japanese Students in America

The Japanese Minister of Education sends a number of educators and especially selected students each year to the United States. In the last five-year period physicians represent more than 50 per cent of those chosen, most of whom are professors or assistant professors in the Japanese medical colleges.—*Cincinnati J. of Med.*, May, 1933.

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Fellowship in Medicine at University of Geneva

A fellowship for graduate study is offered for the academic year 1933-1934, in medicine, at the University of Geneva, providing tuition and a stipend of 3000 Swiss francs ($600). To be eligible, the candidate must be an American citizen, a graduate of an A grade medical college, and have a thorough knowledge of French. Full details are available at the Institute of International Education, 2 West Forty-fifth Street, New York City.

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Licensure of Graduates of Foreign Schools in New Jersey

The New Jersey State Board of Medical Examiners has ruled that graduates of foreign medical schools must have a certificate from the commissioner of education of New Jersey showing that he has had two years of premedical college work including French, German, chemistry, biology and physics, must have completed a full course in a European medical school in good standing with the board, and must have a license to practice in the country in which the school is located and a certificate from an approved general hospital that he has served a rotating internship of one year.

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National Board of Medical Examiners

The National Board of Medical Examiners was organized in 1915. Its certificate is recognized by the licensing boards of the following forty-two states and three territories. The certificate is not recognized by Alaska, Arkansas, Florida, Indiana, Louisiana, Michigan and Texas.

Candidates for licensure in Connecticut, Illinois, Maine, Montana, Rhode Island and Wyoming are given an oral examination by the state board. In the case of Montana, Nebraska and Ohio the answer papers written by the applicant in his National Board examination are forwarded under seal to the state board

for review and approval. The Maryland and North Carolina boards ask all applicants, whether diplomates of the National Board or otherwise, to present themselves for a personal interview. Applicants for registration in Pennsylvania must have had a rotating internship in accordance with the regulations adopted for all applicants seeking licensure in that state. Several boards, including New York, Pennsylvania and South Carolina, reserve the privilege of reviewing each candidate's credentials. California requires a year of residence in some state after a candidate becomes a diplomate. The examinations of the National Board are also accepted by the basic science boards of Connecticut, Minnesota, Nebraska, Wisconsin and the District of Columbia.

The certificate of the National Board is accepted by the United States Army as a scientific qualification for entrance to the medical corps. It is also accepted in part by the United States Public Health Service. Its diplomates are admitted to the final examinations given by the examining boards of England, Ireland, Scotland and Spain.

Since 1922, when the three parts examination feature was adopted, 15,609 individuals have been examined of whom 1,558, or 11.6 per cent failed to pass.

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Measurement and Guidance of College Students

The first report of the Committee on Personnel Methods of the American Council on Education is available in book form from the press of the Williams & Wilkins Company. The chairman of the committee is Herbert E. Hawkes, dean of Columbia College. The object of the committee was to formulate a plan which will enable educators to gain insight into the capacity, temperament, cultural background and economic resources of students and enough concerning the demands made on these qualities by the various vocations so that the individual could find with a considerable degree of assurance the life work which would attain for him the maximum of effectiveness. As every one knows, a large percentage of college students go through a period of floundering from one field of interest to another for several years after graduation on account of their inability to find out during their college course the nature of their own talents and the requirements of the various callings.

This report details the achievements of the committee in discussing a personal record card which makes it possible to observe trends of development over a long period of years. Examples of the use of this card and its interpretation are given. Reports on achievement tests, personality measurement and factors in the character developments of students are also presented.

The study is a most interesting one although objection may be raised that individual opinions of recorders are open to question, nevertheless it is a step in the right direction, one which may go far to help to eliminate waste of time and money by preventing students from entering a field for which they are not fitted, thus lessening the number of failures. This is especially true in medicine. Teachers will do well to read this report carefully and make an endeavor to adapt it to their needs.

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Medical Research Fund University of British Columbia

A fund of $80,000 to be used for medical research was received as a bequest from the late Dr. Alexander S. Monro, of Vancouver. A committee representing the university, the Vancouver Medical Association and the College of Physicians and Surgeons of British Columbia (the licensing body) will designate the nature of the research and the workers.

Abstracts of Current Literature

Separation of Research from Teaching

Why does an ordinary medical school exist? The only good reason is to teach those who wish to study medicine in order that they may live by that profession and render such service as may be rendered by a good practitioner. There are extraordinary schools, and there is a need for them. These schools should have as their prime object the advancement of medical knowledge. This is an entirely different field from that of medical practice. Is it a fact that some of the expense of what is really graduate teaching has been charged to the account of the medical student? My belief is that more money is being paid out for research than would make up the difference between the total budget and the amount received as students' fees. And all this is being charged to the debt of the student, whereas it is not his debt at all. The student is paying for at least as much as he gets. I do not believe that every man allowed to engage in research should first be obliged to study medicine, and no more am I convinced that the time spent by a student in the research atmosphere of the laboratory increases in direct proportion his ability or his qualification as a good physician. If a research man can, by his achievement, bring distinction to the institution with which he is connected, he will become a drawing card, especially if the institution is provided with a good advertising department. Such a man is of almost as much value to the institution as a winning football team. But this man must continue in production, otherwise his value will diminish quickly. Since his greatest value to the institution consists in his ability to produce output which will further advertise the institution, is it reasonable to suppose that his teaching or his administrative duties will be performed so faithfully?

Research should not be carried on by the undergraduate school. The medical student derives no more benefit from research than any other citizen and, therefore, its expense should not be charged to his account. The student derives most benefit from his teachers. In considering qualification for a teaching post, it is customary to lay most stress on research accomplishment. This discourages teaching ability. A research man can do his best only when free at any and all hours, and for this reason alone, if for none other, research should be separated from teaching.—Wm. T. Coughlin, *J.A.M.A.*, April 22, 1933.

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The Medical Curriculum

An important discussion has been aroused in Edinburgh by the publication of an article entitled "Away with the Lumber of the Medical Curriculum," by Dr. Chalmers Watson, senior physician to the Royal Infirmary. He regards the medical curriculum as overloaded in some respects and deficient in other respects, particularly in clinical training and in such subjects as dietetics, antenatal hygiene, physicotherapeutics and eugenics. He brings forward a number of proposals for reform: 1. No course of systematic lectures should exceed fifty, each subject being represented by a textbook adapted to the student's needs; some tutorial work and demonstrations should be added. These should be so planned as to cultivate the individual student's thinking powers. 2. In determining the number of systematic lectures for special subjects, the sole consideration

should be the needs of the student. In regard to public health, for instance, it should be remembered that a public health appointment necessitates a special qualification, obtained after graduation. 3. The time for practical medicine must be at least trebled, while the time devoted to practical surgery and operations should be diminished, except in relation to outpatient work. 4. Facilities for clinical observation and instruction should be available at an earlier part of the curriculum than at present. These should begin not later than the second year. 5. Outpatient work in "dispensary" practice should be reestablished and organized as an integral part of the student's work. 6. Reorganization of all the basal scientific subjects is called for. Less detail and more applied instruction should be given. 7. In the third year the present "combined" class of medicine, surgery and pathology should be replaced by the former complete entity "The Principles and Practice of Medicine." This year's study is now a travesty of the word education; there is no surgery in the practice of medicine and, for all practical purposes, no morbid anatomy or pathology in a large part of the work of the practitioner. 8. The present class of "anatomy" and physiology in relation to clinical medicine" should be abolished, as being largely a waste of time of both student and teacher. The lectures in "clinical medicine" should be reorganized and so as to secure cooperation of the teachers in special subjects; e. g., public health. 9. the time of senior medical students should not be unduly taken up by special classes for the final examination on subjects of very restricted practical importance for the student's future needs. 10. The time saved by sacrifice of unnecessary details should be devoted to subjects of the highest importance; e. g., dietetics, antenatal hygiene, eugenics. Finally, Dr. Watson sums up the defects of the present curriculum as the prevalence of the cramming system, excessive teaching of specialized detail, and inadequate teaching in the principles and practice of preventive medicine.

In the *Scotsman,* Dr. William Robertson, formerly health officer for Edinburgh, says that, while he agrees with a great deal in the scheme, it embraces too many reforms. The present-day student is better educated than his predecessors of thirty or forty years ago, but he is not a better healer. The all-round general practitioner, who used to be so highly esteemed, has almost disappeared. Wherever there is mass production, a certain amount of scamping must take place. There are too many students and too big classes. In the discussion, Edinburgh physicians generally agreed that the curriculum is overloaded. Botany and zoology ought to be linked together and taught as one subject; viz., biology in relation to medicine. Physiology ought not to be taught so much as a pure science but more in relation to man. The student wastes much time in getting up abstruse operations he will never be called on to do. Most of the criticisms are in agreement with Dr. Watson and only emphasize his points.—LONDON LETTER, *J.A.M.A.,* June 17, 1933.

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New Function of Outpatient Department

There is one function which an outpatient department might perform. It might provide a consulting service and special examinations for patients who are unable to pay for these. For example, if a practitioner had a poor patient who was unable to pay, and in the opinion of the doctor this patient required some special examination or investigation, he could be referred with a letter to the attending staff of a hospital. All that would be required would be to insist that no patient would be seen in the outpatient department of a hospital without a letter from a doctor, and, fur-

ther, that once the investigation asked for by the doctor was completed, the patient should not be readmitted to the clinic without a further request from a doctor. This system could be well extended to the inpatient departments of the public services, an exception to be made in the case of emergencies. It would be comparatively simple for the attending staff of each department to have one morning a week on which they would see poor patients referred by practitioners for special examinations or special opinion. The patient could then be sent back to his doctor, with a letter containing the special report. There would be no need to carry out any treatments in the outpatient department. If admission to the wards were required for a further investigation or treatment, this could be arranged. It might be objected that this system of consultations for poor patients might be abused. If it were abused, it would be by members of the medical profession, and the profession itself could deal with the situation. —*Bull. Manitoba M. Assn.*, May, 1933.

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Teaching of Obstetrics

The question of the teaching of obstetrics has been taken up at the Royal Society of Medicine in the Section of Obstetrics and Gynaecology by well known teachers. Mr. Eardley Holland of London Hospital referred to the report of a committee appointed in 1919 to inquire into the teaching of obstetrics and gynecology. No fault was found with the systematic teaching, but the practical instruction was condemned, chiefly owing to lack of facilities for inpatient teaching. An expansion of hospital accommodations for maternity cases was recommended. All that the schools could hope to do was to turn out a reasonably safe practitioner of midwifery, not an obstetric specialist. It was the custom to decry systematic lectures, but he believed in their value, because a difficult subject could be obtained much more vividly than by reading a textbook.

As to clinical teaching, he favored a six months course. He found students woefully ignorant of the anatomy and physiology of reproduction, and much of his time was occupied in teaching a student what he should have learned when studying anatomy and physiology. More use should be made of the phantom, on which students should practice maneuvers daily under supervision.

Mr. L. Carnac Rivett of Middlesex Hospital believed in clinical rather than systematic lectures and attached great importance to tutorial classes. Each student should be instructed not only in the actual delivery of normal cases but in all such obstetric operations as he would have to perform later in practice.

Mr. Ninian Falkiner of Rotunda Hospital, Dublin, considered two months residence in maternity hospitals necessary for students. The number of forceps deliveries at the Rotunda was not great, so that they could not teach every student to perform a forceps delivery. He desired to see the gradual development of postgraduate training in conjunction with a special degree.

Mr. W. J. H. M. Beattie of St. Bartholomew's Hospital considered the teaching of gynecology comparatively easy, but obstetrics was more difficult, chiefly because of the large number of students and the small amount of obstetric material. Tutorial and practical demonstrations should take precedence over systematic lectures. Too much attention was paid to the theoretical and academic side of teaching because of the need to pass examinations.—London Letter, *J. A. M. A.*, June 26, 1932.

Book Reviews

American and Canadian Hospitals

Edited by James C. Fifield, with the cooperation of the American Hospital Association. Midwest Publishers Company, Minneapolis, 1933. Price, $10.

A reference book giving historical, statistical and other information on approved hospitals of every type and allied institutions, hospital ships, leper colonies and frontier nursing service. All data given are authentic. Various organizations supporting and promoting hospital work are described. This work is deserving of the highest commendation and will doubtless be of much value to every one interested in the data presented.

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Urine and Urinalysis

By Louis Gershenfeld, professor of bacteriology and hygiene in the Philadelphia College of Pharmacy and Science. Lea & Febiger, Philadelphia. 1933. Price, $2.75.

A consideration of urine from all of its aspects, including laboratory methods of examination, the nature of cases in which abnormal findings prevail and the aid that may reasonably be expected to be forthcoming from such examinations. The author indicates the best techniques of the methods used and points out the relative value of the procedures and the practical importance of the knowledge obtained from them. A handy, compact, useful book for students.

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Orthopaedic Surgery

By Walter Mercer, lecturer in Clinical Surgery, University of Edinburgh. William Wood & Company, Baltimore, 1933, Price, $8.

A comprehensive survey of each topic with frequent expressions of personal opinion. Operative procedures are described in sufficient detail to enable the young surgeon to perform them with confidence. The classification followed is the usual one. The illustrations and drawings are numerous, well made and should prove helpful. The text is unusually well written and makes the reading of this book a real pleasure.

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A Shorter Orthopedic Surgery

By R. Brooke, Hon. Orthopedic Surgeon Royal West Sussex Hospital, London. William Wood & Company, New York. 1932. Price, $3.

This book covers all of the commoner conditions very well and tells enough about the more uncommon conditions to enable the student to recognize them. The book is intended for the use of undergraduates who necessarily cannot give much time to the study of orthopedics and as a supplement to a larger textbook. Contains many helpful and well made illustrations.

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Diseases of the Nose, Throat and Ear

Edited by A. Logan Turner, Royal Infirmary, Edinburgh, with the collaboration of J. S. Fraser, W. T. Gardiner, J. D. Lithgow, Douglas Guthrie and G. Ewart Martin. Third edition. William Wood & Company, New York. 1932. Price, $6.

Revised, rewritten and much new matter added. A description of the physiology of the otolith apparatus and its relation to clinical investigation is entirely new. Many new illustrations have been added. An excellent book for students, one of the best texts in the English language and the equal of any text in any language.